

Zebra S-Series

Maintenance Manual

Volume 1: General Maintenance



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Zebra S-Series Printer

Maintenance Manual (Volume 1, Rev. 3) Registration Form

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Printer Specifications

Media Handling

- **Tear-Off mode:** Labels are produced in strips.
- **Rewind mode:** Requires Media Rewind option. Labels are rewound internally onto a 3"-inner-diameter cardboard core.
- **Peel-Off mode:** Requires Peel-Off option or Media Rewind option. Labels are dispensed and peeled from the liner. The liner can be rewound directly onto the spindle using the "J" Hook or onto a 3"-inner-diameter cardboard core.
- **Cutter mode** Requires Cutter Module option (105Se only). Media is cut after printing; under software control.

Printing Considerations

Specification		105S/105Se			160S
Resolution (thermal transfer or direct thermal)		203 dots per inch (8 dots per mm)	Optional 152 dots per inch (6 dots per mm)	Optional 300 dots per inch (12 dots per mm)	203 dots per inch (8 dots per mm)
Dot size (square)		0.00492" (0.125 mm)	0.00656" (0.167 mm)	0.0033" x 0.0039" (0.083 x 0.100 mm)	0.00492" (0.125 mm)
Maximum print width		4.09" (104 mm)	4.09" (104 mm)	4.09" (104 mm)	6.30" (160 mm)
Maximum print length	Standard 512 KB memory	15" (381 mm)	26" (660 mm)	N/A	9.5" (241mm)
	With 1 MG memory	39" (991 mm)	39" (991 mm)	18" (457 mm)	25" (635 mm)
Bar code modulus ("X") dimension		5 mil to 50 mil	6.6 mil to 66 mil	3.33 mil to 33.3 mil	5 mil to 50 mil
Programmable constant printing speeds		2" (51 mm), 3" (76 mm), 4" (102 mm), 5" (127 mm), or 6" (152 mm) per second. The 105S and 105Se with optional 300 dots/inch resolution support 2.4" (61 mm), 3" (76 mm), and 4" (102 mm) per second.			
Thin film printhead with Energy Control					

Media Considerations

Media Specifications			105S/105Se		160S	
Total media width		Maximum	4.5"	114.3 mm	7.2"	182.9 mm
		Minimum	0.75"	19.05 mm	2.0"	50.8 mm
Label length	Maximum		39" (991 mm)		25" (635 mm)	
	Minimum	Tear-Off	0.63"	16.00 mm	0.63"	16.00 mm
		Peel-Off	0.50"	12.8 mm	0.50"	12.8 mm
		Rewind	0.50"	12.8 mm	0.50"	12.8 mm
		Cutter	1.25"	31.75 mm	N/A	N/A
Total thickness (includes liner)	Maximum (<i>Printhead position may need adjustment if thickness is above 0.01"</i>)		0.012"	0.304 mm	0.012"	0.304 mm
	Minimum		0.0023"	0.058 mm	0.0023"	0.058 mm
Core size			3.0"	76.2 mm	3.0"	76.2 mm
Maximum roll diameter			8.0"	203 mm	8.0"	203 mm
Interlabel gap (0.115"/3 mm preferred)			0.079" - 0.157"	2 mm - 4 mm	0.079" - 0.157"	2 mm - 4 mm
Black mark sensing	Minimum mark length (thickness)		.118"	3 mm	.118"	3 mm
	Minimum mark width (extending in from the liner or tag stock edge)		.393"	10 mm	.393"	10 mm
Maximum internal fanfold media pack size (L x W x H)			8.0" x 4.5" x 6.2"	203 x 114 x 158 mm	8.0" x 7.2" x 6.2"	203 x 183 x 158 mm

Ribbon Considerations

Ribbon Specifications		105S/105Se		160S	
Ribbon width <i>To protect the printhead from wear, Zebra recommends using ribbon at least as wide as the media you are using.</i>	Maximum	4.5"	114 mm	6.89"	175 mm
	Minimum	0.75"	19 mm	2.0"	50.8 mm
Standard lengths	2:1 media to ribbon roll ratio	984 ft	300 m	984 ft	300 m
	3:1 media to ribbon roll ratio	1476 ft	450 m	1476 ft	450 m
Roll size	Inner diameter of core	1.0"	25.4 mm	1.0"	25.4 mm
	Outside diameter of full ribbon roll	3.2"	81.2 mm	3.2"	81.2 mm

Zebra Programming Language II (ZPL II®)

- Downloadable graphics (with data compression)
- Bit image data transfer and printing, including mixing of text and graphics
- Format inversion
- Mirror image printing
- Four-position field rotation (0, 90, 180, 270 degrees)
- Slew command
- Programmable quantity with print pause
- Communicates in printable ASCII characters
- Controlled via mainframe, mini, PC, Zebra-Mate or other data-entry device
- Serialized fields
- In-spec OCR-A and OCR-B
- UPC/EAN at nominal 100% magnification (6 dot/mm and 12 dot/mm printheads only)

Bar Codes

The following bar codes are available:

- Code 11, Code 49, Code 93
- Code 39 (Supports ratios of 2:1, 3:1, 5:2, and 7:3)
- Code 128 (Supports serialization in subsets B and C and UCC Case C Codes)
- CODABAR (Supports ratios of 2:1, 3:1 and 5:2)
- Interleaved 2 of 5 (Supports ratios of 2:1, 3:1 and 5:2; also supports Modulus 10 Check Digit)
- Industrial 2 of 5, Standard 2 of 5
- Plessey
- MSI
- CODABLOCK and MAXICODE
- E/EAN-8, E/EAN-13, EAN EXTENSIONS
- UPC-A, UPC-E, UPC EXTENSIONS
- PDF 417 and POSTNET
- Data Matrix

Standard Printer Fonts

Fonts A, B, C, D, E, F, G, H, and GS are expandable up to 10 times, height- and width-independent. However, fonts E and H (OCR-A and OCR-B) are not considered “in-spec” when expanded.

The scalable smooth font Ø (CG Triumvirate™ Bold Condensed) is expandable on a dot-by-dot basis, height- and-width independent, while maintaining smooth edges. Maximum character size depends on the available memory.

IBM Code Page 850 international character sets are available in fonts A, B, C, D, E, F, G, and Ø through software control.

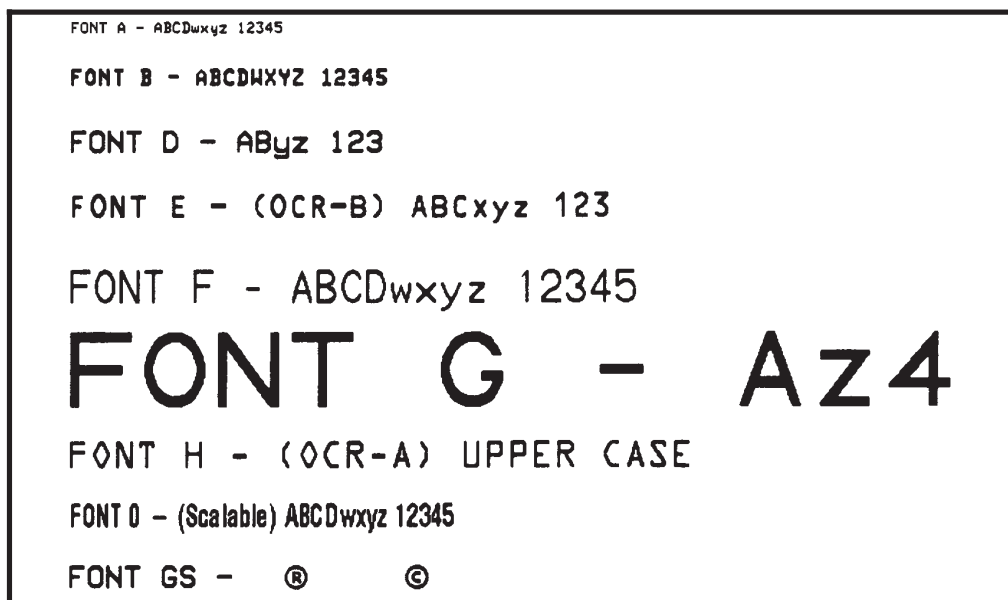


Figure 1.1 Sample of Default Fonts

Font Matrices for 6 dots/mm Printhead (105S/105Se only)										
Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-character gap		Height	Width	Char./inch	Height	Width	Char./mm
A	9	5	1	U-L-D	0.059	0.039	25.40	1.50	1.00	1.00
B	11	7	2	U	0.072	0.059	16.93	1.83	1.50	0.67
C, D	18	10	2	U-L-D	0.118	0.079	12.70	3.00	2.00	0.50
E	21	10	3	OCR-B	0.138	0.085	11.72	3.50	2.17	0.46
F	26	13	3	U-L-D	0.171	0.105	9.53	4.33	2.67	0.38
G	60	40	8	U-L-D	0.394	0.315	3.18	10.00	8.00	0.13
H	17	11	4	OCR-A	0.112	0.098	10.16	2.83	2.50	0.40
GS	24	24	0	SYMBOL	0.157	0.157	6.35	4.00	4.00	0.25
Ø	Default: 15 x 12			U-L-D	Scalable					

* U = Uppercase, L = Lowercase, D = Descenders

Font Matrices for 8 dots/mm Printhead (105S, 105Se and 160S)										
Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-character gap		Height	Width	Char./inch	Height	Width	Char./mm
A	9	5	1	U-L-D	0.044	0.029	33.90	1.13	0.75	1.33
B	11	7	2	U	0.054	0.044	22.60	1.38	1.13	0.89
C, D	18	10	2	U-L-D	0.088	0.059	16.95	2.25	1.50	0.67
E	28	15	5	OCR-B	0.138	0.098	10.17	3.50	2.50	0.40
F	26	13	3	U-L-D	0.128	0.079	12.71	3.25	2.00	0.50
G	60	40	8	U-L-D	0.295	0.236	4.24	7.50	6.00	0.17
H	21	13	6	OCR-A	0.103	0.093	10.71	2.63	2.38	0.42
GS	24	24	0	SYMBOL	0.118	0.118	8.48	3.00	3.00	0.33
Ø	Default: 15 x 12			U-L-D	Scalable					
* U = Uppercase, L = Lowercase, D = Descenders										

Font Matrices for 12 dots/mm Printhead (105S/105Se)										
Font	Matrix			Type*	Character Size					
					Inches			Millimeters		
	Height	Width	Inter-character gap		Height	Width	Char./inch	Height	Width	Char./mm
A	9	5	1	U-L-D	0.029	0.016	50.80	0.73	0.40	2.00
B	11	7	2	U	0.036	0.023	33.86	0.91	0.58	1.34
C, D	18	10	2	U-L-D	0.059	0.033	25.40	1.49	0.83	1.00
E	42	20	6	OCR-B	0.138	0.066	23.44	3.50	1.67	0.92
F	26	13	3	U-L-D	0.185	0.042	19.06	2.15	1.06	0.76
G	60	40	8	U-L-D	0.198	0.132	6.36	5.02	3.35	0.26
H	34	22	8	OCR-A	0.112	0.072	20.32	2.84	1.82	0.80
GS	24	24	0	SYMBOL	0.079	0.079	12.70	2.00	2.00	0.50
Ø	Default: 15 x 12			U-L-D	Scalable					
* U = Uppercase, L = Lowercase, D = Descenders										

Physical Size

Physical Characteristics	105S/105Se		160S	
Height	15.4"	391 mm	15.4"	391 mm
Width	10.5"	267 mm	13.1"	333 mm
Depth	18.9"	480 mm	18.9"	480 mm
Weight (without options)	43 lbs.	19.5 kg	55 lbs.	24.9 kg

Electrical Requirements

- 115 VAC +15%/–20% or 230 VAC +15%/–15%, 48-62 Hz
- 5 Amps @ 115V, 3 Amps @ 230V
- UL 1950 Listed - Certified to CAN/CSA-C22.2 No. 950-M89
- Classified to IEC 950 and Complies with FCC and Canadian DOC class “A” rules
- Carries the CE mark of compliance

Cable Requirements

The AC Power Cord has a three-prong female connector on one end. This connector must be plugged into the mating connector at the rear of the S-Series printer.

115 VAC Applications

A Standard US-style, three-prong grounded male plug is attached to the other end of the AC Power Cord. This connector must be plugged into a nearby electrical outlet.

230 VAC Applications

An AC Power Cord may or may not be included with the printer. For those locations that cannot use either of the three power cords listed below, a proper grounded AC Power Cord must be obtained and installed by the user (See Figure 2.2). The cable must then be plugged into a nearby electrical outlet.

Part Number	AC Power Cable Description
44618	Detachable Power Cord (US Standard 3-prong plug - 115 VAC)
44629	Detachable Power Cord (Continental Europe 3-prong plug - 230 VAC)
44637	Detachable Power Cord (British 3-prong plug - 230 VAC)

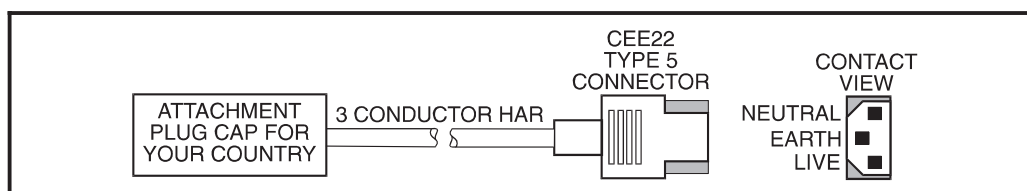


Figure 1.2 AC Power Cable

Environmental Ranges

Temperature	Operating	+41°F to +104°F (+5°C to +40°C)
	Storage	-40°F to +158°F (-40°C to +70°C)
Non-condensing relative humidity	Operating	20% to 85%
	Storage	20% to 85%

Communication Specifications

Both serial and parallel data communication interfaces are available for the S-Series printers. The S-Series printer sends and receives standard ASCII (American Standard Code for Information Interchange) data characters.

With ZPL II[®], the Error Detection Protocol feature provides virtually error-free communications. Refer to the user's guide for further information.

Serial Data Communications Overview

The S-Series printers have a Data Terminal Equipment (DTE) port that supports RS-232 serial data communications. The RS-232 interface has a standard 25-pin DB25-S connector located at the rear of the printer. For all RS-232 input and output signals, the S-Series printer follows the EIA RS-232 and CCITT V.24 specifications for signal levels.

The baud rate, number of data bits, and parity are user-selectable via DIP switches at the rear of the printer. Parity only applies to data *transmitted* by the printer. The parity associated with *received* data is ignored. Further information on the settings of these switches is contained in the printer's user's guide.

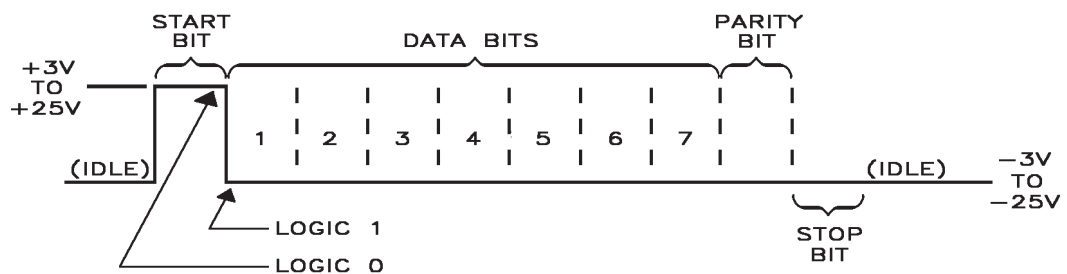


Figure 1.3 RS-232 Signal/ASCII Code Data Conditions

Serial Data Signal Levels

Serial data signals are defined as either MARK or SPACE, while control signals are either ON or OFF. The output levels for the S-Series printers are as follows:

MARK or OFF = - 7 to - 10 Volts
SPACE or ON = +7 to +10 Volts

Serial Interface Connector Pinout and Description

A DB25-S connector is located at the rear of the Zebra S-Series printer and provides serial data communications to a host using RS-232 signaling.

The pinouts and signal descriptions for the DTE port are as follows:

Pin No.	Serial Data Port Signal Description
1	Frame Ground
2	Transmit Data: TXD is the serial data output of the Zebra S-Series printer. It is on this lead that printer status information is transmitted to the host.
3	Receive Data: RXD is the serial data input to the Zebra S-Series printer from the host.
4	Request To Send: RTS is an output from the Zebra S-Series printer. It is a constantly active output to the host computer.
6	Data Set Ready: DSR is an input to the Zebra S-Series printer from the host.
7	Signal Ground: Tied to logic ground. This lead serves as the voltage reference between the two communicating devices.
9	Reserved: For Future Use.
20	Data Terminal Ready: DTR is an output from the Zebra S-Series printer and is the control line between the printer and the host. When the DTR control line from the printer is in the ON condition, the host is allowed to send data to the printer. When DTR is in the OFF condition, the host is not allowed to send data. This condition occurs when the printer is configured for DTR/DSR data flow control and the communication buffer is within 512 characters of its capacity.
5, 8, 10-19, 21-25	Unterminated: These leads are not used.

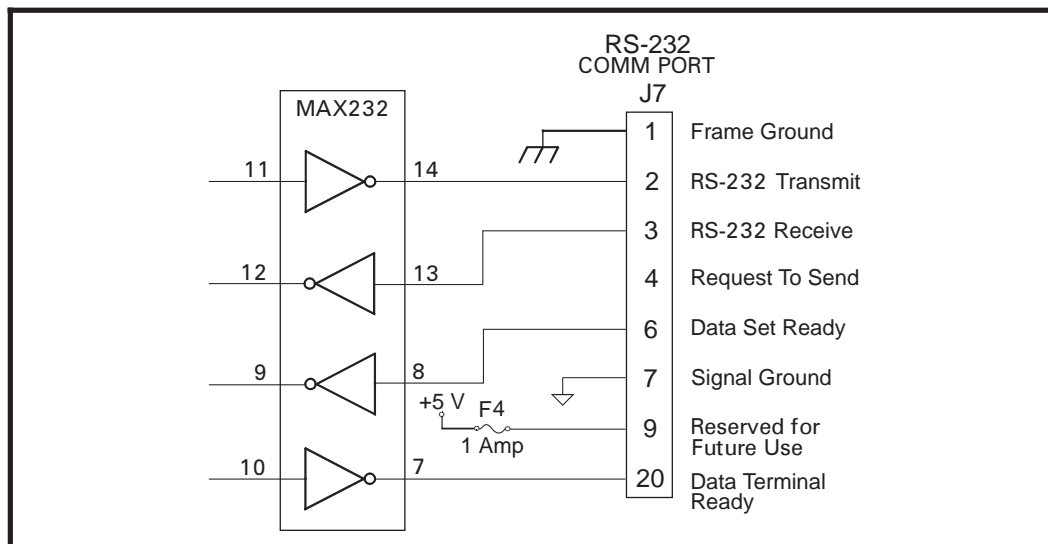


Figure 1.4 Serial DTE Port Interface

Parallel Data Communications Overview

The S-Series printer may have a parallel data communications port instead of the previously mentioned serial data port. The Parallel Interface has a standard 36-pin connector located at the rear of the printer. In this data communication method, the bits of data which make up each character are sent all at one time over several wires in the cable, one bit per wire.

Parallel Data Signal Levels

Parallel data signals are defined as either HIGH or LOW, while Control Signals are either Active or Inactive. The distinction is due to the fact that some Control Signals are active HIGH while others are active LOW. The voltage levels which represent these conditions are:

Data Signal	Voltage Level
HIGH	+5 VDC
LOW	0 VDC

Parallel Interface Connector Pinout and Description

The following chart provides a description of each of the pins in the parallel connector. A standard parallel data cable will provide the required interconnection between the host and the S-Series printer.

Pin No.	Parallel Data Port Signal Description
1	The <u>STROBE</u> printer input has internal 3.3 k Ω pull-up resistors to 5V (I_{OL} = 1.5mA) and is designed to receive a signal driven open collector $V_{OL} \leq 0.8V$. This pin is a signal from the host computer. Its LOW going edge will latch the data at the eight DATA inputs. Data is <u>non-transparently</u> latched so as to avoid hold time requirements on the DATA signals. The STROBE input is debounced to require an active width greater than 0.5 μ sec before data is latched.
2 - 9	DATA inputs have TTL input characteristics with internal 3.3 k Ω pullups and represent 1 TTL unit load or less. The DATA inputs are positive logic with a HIGH voltage level corresponding to a logic 1. Pin 2 through Pin 9 = D0 through D7 respectively.
10	The <u>ACK</u> output is a 12 microsecond active LOW pulse indicating that the printer is ready to accept data. The active LOW state precedes BUSY by 7 microseconds. ACK is driven open collector with a 3.3 k Ω internal pull-up. The output sinks 7 mA to a $V_{OL} \leq 0.4V$.
11	The BUSY output is active HIGH whenever the printer cannot accept data due to any normal or abnormal condition, including Buffer Overflow, Head Open, Over Temperature, and Media Error conditions. BUSY is driven open collector with a 3.3 k Ω internal pull-up. The output sinks 7 mA to a $V_{OL} \leq 0.4V$.
12	The PAPER OUT signal is active HIGH whenever the printer is out of media or ribbon.
13	The SELECT signal function is determined by an additional configuration option which becomes active when the port is present. In the default condition, SELECT is active HIGH whenever the parallel port is powered up and the parallel port is enabled. In the non-default condition, SELECT will go active LOW whenever the printer is printing.
18	+5 VDC Supply provides an output of +5 VDC at a maximum current rating of 50 mA. (Internal Fuse Protected)
32	The <u>ERROR</u> Output (Pin 15) is active LOW whenever any error condition is present. ERROR is driven open collector with a 3.0 k Ω internal pull-up. The output sinks 7 mA to a $V_{OL} \leq 0.4V$.
35	+5 VDC Pull-Up provides an output of +5 VDC through an internal 3.0 k Ω resistor.
16, 17, 19 - 30, 33	SIGNAL GROUNDS are the Logic Grounds and Returns for all Input and Output signals.
14, 15, 31, 34, 36	NOT USED - These leads should be left unconnected.

For an illustration of the parallel communication data and control circuits, refer to the Main Logic Board Schematic in Volume 2 (Part # 38453L).



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This section of the manual is intended to supplement the User's Guide by providing additional information to aid the service technician in troubleshooting and maintaining the printer.

Controls and Indicators

All of the printer controls and indicators are located on the front of the unit except for the Power ON/OFF Switch, which is located at the rear of the printer.

Front Panel Controls

AC Power ON/OFF Switch

Controls application of AC Power to the printer. When powered ON, the printer will perform a Power ON Self Test as it begins operation. Turning the printer ON while holding down certain front panel keys will cause additional printer self tests to occur once the Power ON Self Test is complete. The AC Power Switch should be turned OFF prior to connecting or disconnecting any cables.

PAUSE Key

The PAUSE Key stops and restarts the printing process. If the printer is idle (not printing) when the PAUSE Key is pressed, no printing can take place. If the PAUSE Key is pressed while printing is in progress, the printing stops once the current label is completed.

Pressing the PAUSE Key a second time resumes the printing process.

FEED Key

The FEED Key forces the printer to feed one blank label. If the printer is idle (not printing) or if the PAUSE function is active when the FEED Key is pressed, one blank label feeds from the printer immediately. If the printer is printing, one blank label feeds out after completion of the current batch of labels. After one blank label is fed out, pressing the FEED Key again will provide a second blank label.

CANCEL Key

The CANCEL Key is only recognized when the PAUSE function is active. Press the CANCEL Key and the current label format will be canceled. If no format is printing, the next one to be printed will be canceled. If there are no formats in the printer, the CANCEL Key is ignored. If the CANCEL Key is pressed for an extended period of time (3 seconds), the printer will perform a "Cancel All Formats" operation.

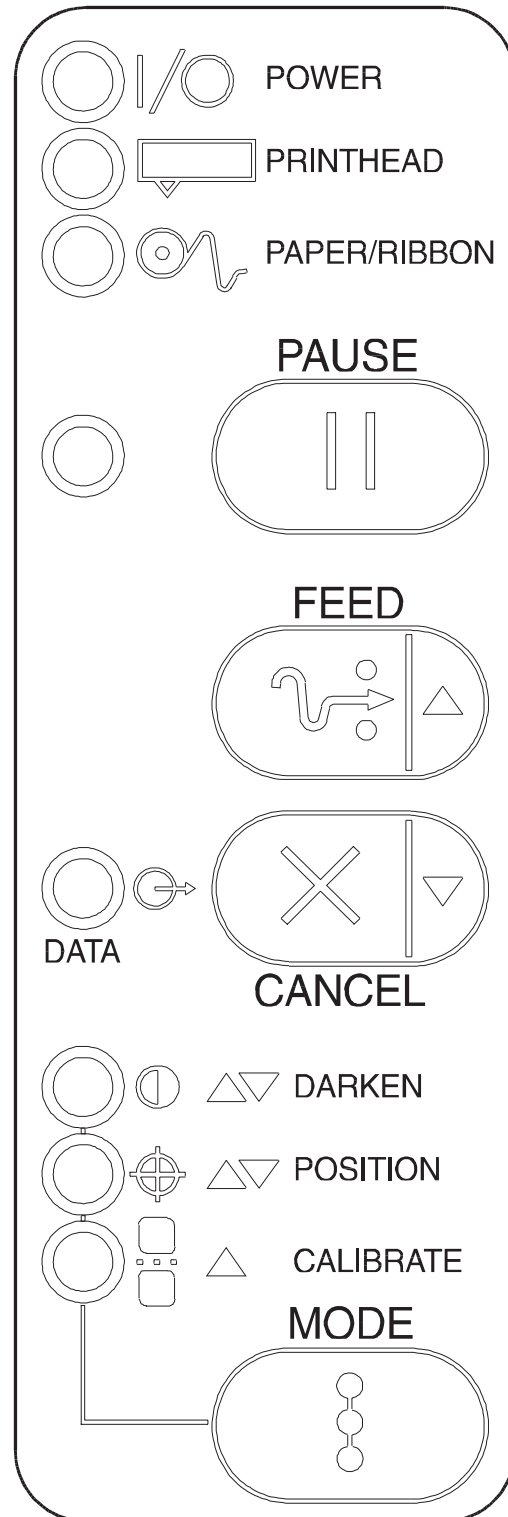


Figure 2.1 Front Panel Controls

MODE Key

The MODE Key causes the printer to enter the Configuration Mode. In this Mode, the Print Darkness, Media Tear-Off Position, and Label Top Position settings can be adjusted.

The Media Calibration procedure is also activated by the MODE key.

Refer to the user's guide for details on the Configuration Mode and the Media Calibration procedures.

Front Panel LEDs

Refer to Figure 2.1 for the location of the LEDs.

NOTE: If an operating condition which causes an LED to be ON constantly and one which causes the same LED to flash occur at the same time, the LED will flash.

LED Name	Status	Indication
POWER	ON	Printer is ON. The AC Power ON/OFF Switch is in the ON position and the power cord is connected.
PRINthead	OFF	Normal operation.
	ON	Printhead Over Temperature condition. Printing stops until the printhead cools down. Printing resumes automatically.
	Flashing	Printhead Under Temperature condition. Printing continues.
PAPER/ RIBBON	OFF	Media and ribbon (if used) are properly loaded.
	ON	Paper out.
	Flashing	1. In Thermal Transfer Mode: Ribbon is out. 2. In Direct Thermal Mode: Ribbon is in the printer.
PAUSE	OFF	Normal operation.
	ON	Printer has stopped all printing operations.
DATA	OFF	Idle, no data being received.
	ON	Labels are printing.
	Single flash	The CANCEL key was pressed and a format was successfully deleted from the print queue.
	Flashing	Receiving data from host computer.
	Slow flashing	Printer sent a "stop transmitting data" (X-OFF) command to the host computer.
DARKEN	ON	Printer is in the Configuration Mode. See the Mode Key operation for more information.
POSITION	ON	
CALIBRATE	ON	

Media Loading

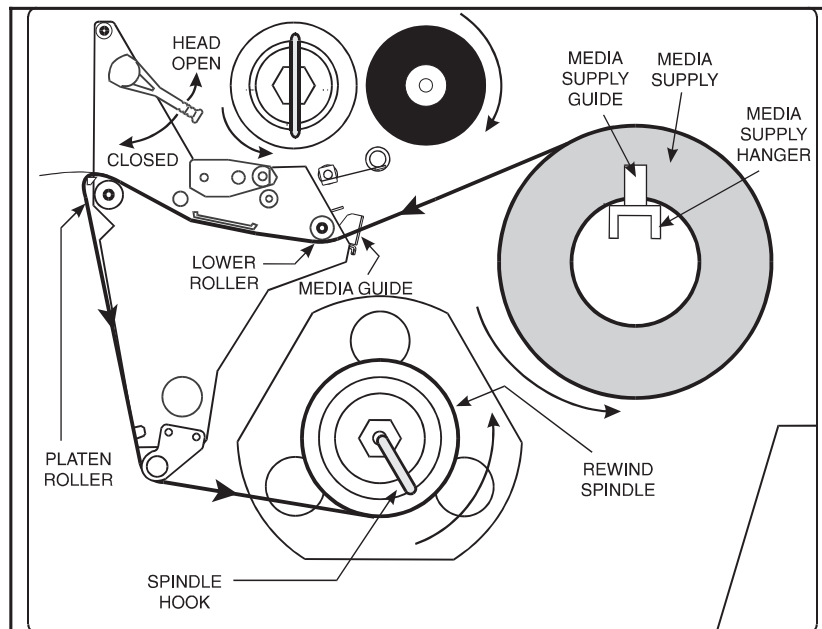


Figure 2.2 Roll Media Loading

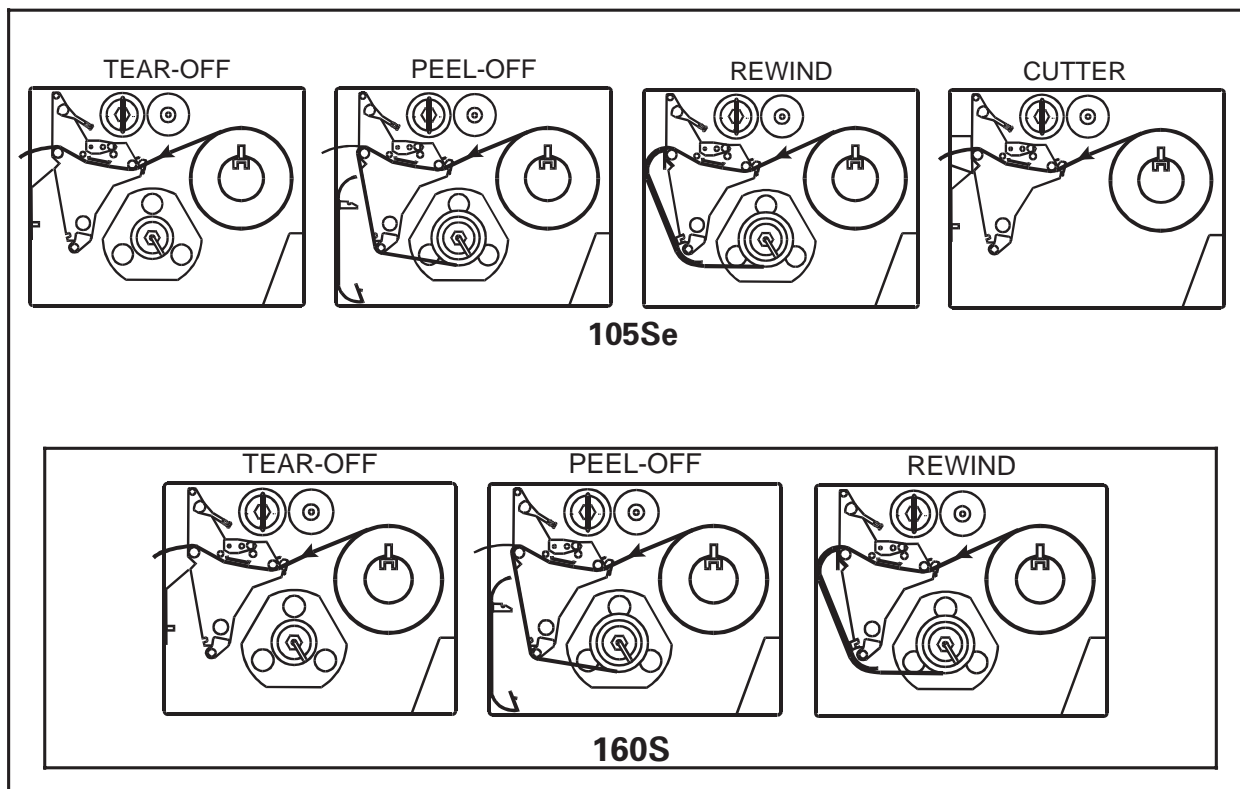


Figure 2.3 Roll Media Loading Diagrams

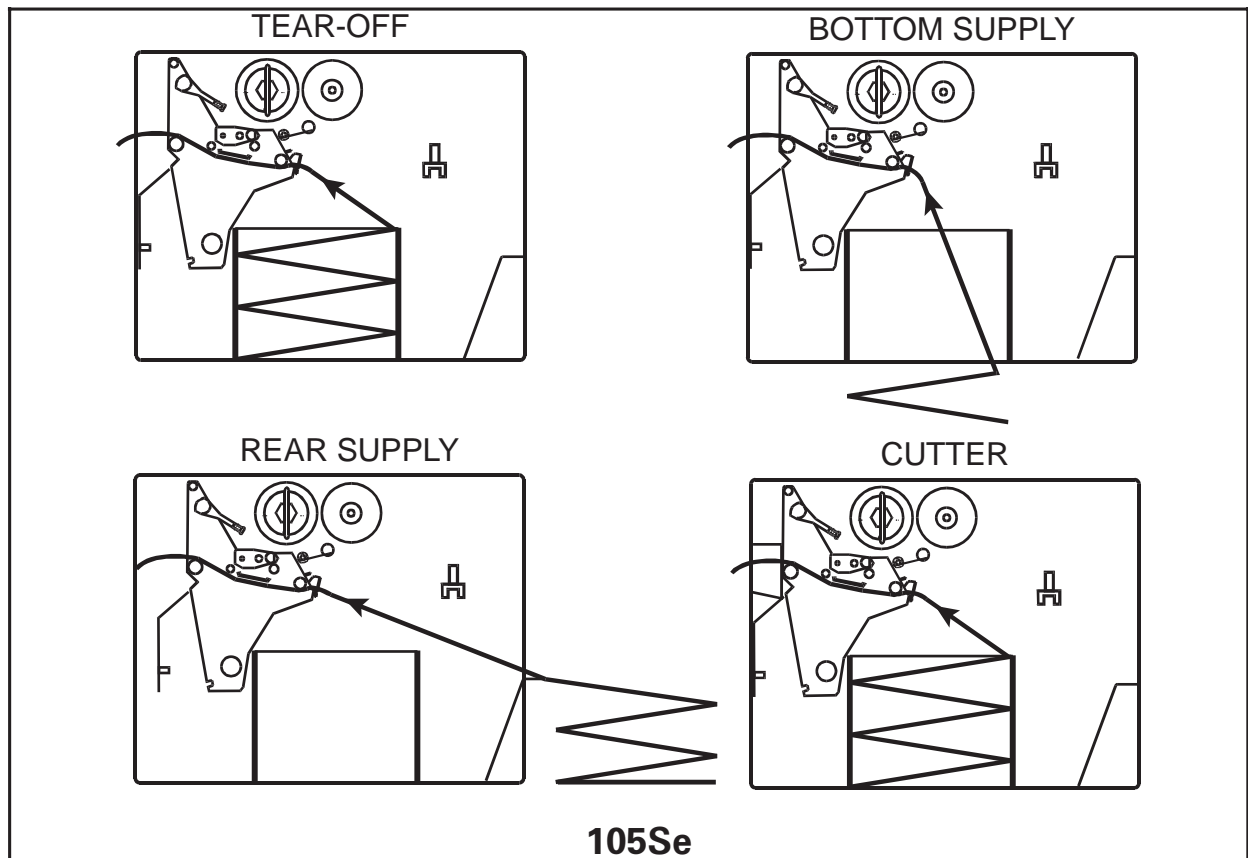


Figure 2.4 Fanfold Media Loading Diagrams

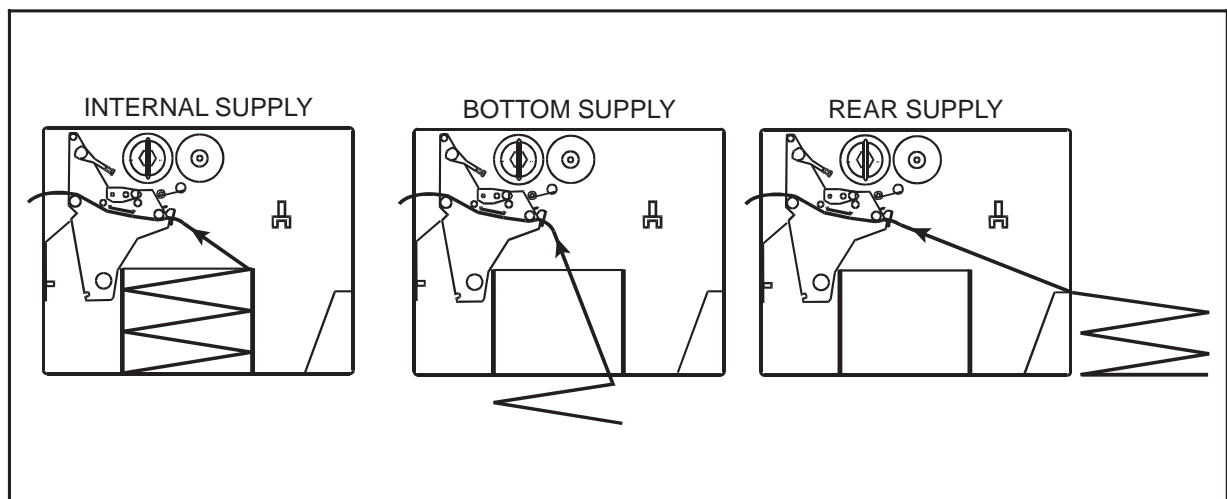


Figure 2.5 Fanfold Media Loading Diagrams (160S)

Ribbon Loading

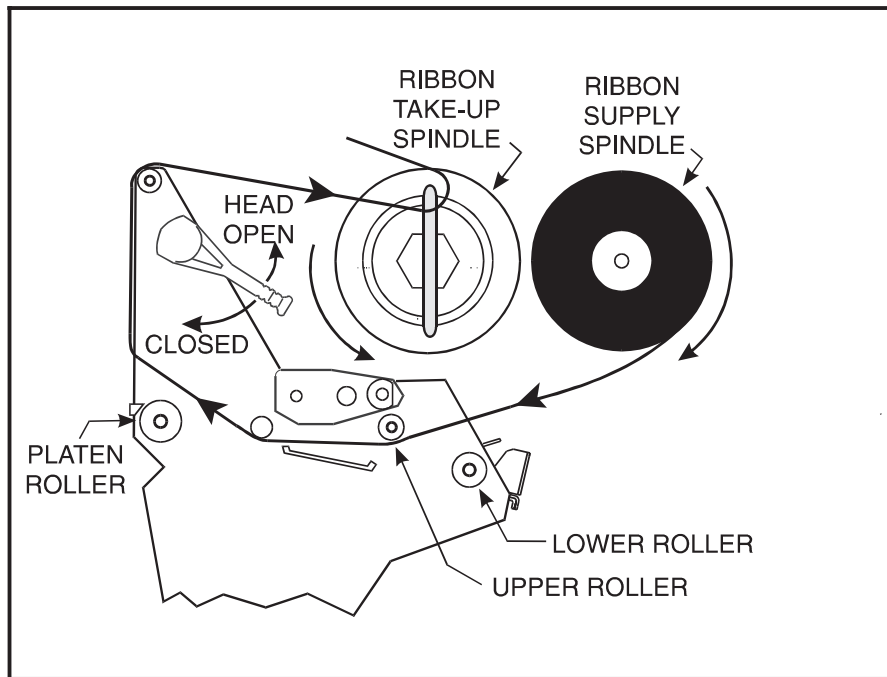


Figure 2.6 105Se Ribbon Loading Diagram

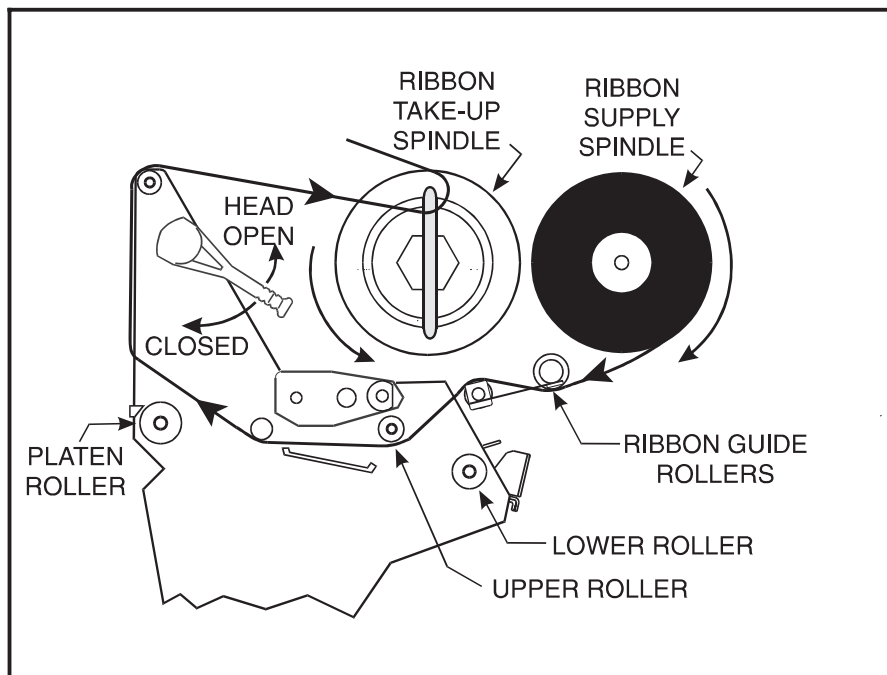


Figure 2.7 160S Ribbon Loading Diagram

Media Calibration

IMPORTANT: Perform the media calibration procedure when media is first installed or when a different type of media or ribbon is installed.

During this procedure, the printer automatically determines the media type, label length, media and ribbon sensor settings, and printing method.

NOTE: Make sure that the media and ribbon rolls are positioned against the inner spindle stops.

1. Press the MODE key three times. The PAUSE and CALIBRATE lights turn on.
2. Press FEED to calibrate. The printer feeds some media. The MODE lights will flash on and off to indicate that the settings have been saved in memory.
3. Press PAUSE to exit PAUSE mode; the PAUSE light turns off.

Adjusting the Print Darkness

Due to differences in types of media/ribbon and the wear on the printhead, it may be necessary to adjust the darkness setting (burn temperature) of the S-Series printhead to achieve proper printing. Use the following procedure to adjust the darkness; turning the printer OFF is not required for the new setting to take effect.

CAUTION

Set the darkness to the lowest possible for the desired print quality. Darkness set too high for a given ribbon may cause printhead damage, ink smearing, ribbon wrinkle, and/or burning through of the ribbon.

1. Begin printing a batch of labels. Use a self test label (see *Printer Diagnostics*) or preferably, one of your own formats.
2. Pause the printing by pressing the PAUSE key.
3. Press the MODE key once to place the printer in “Darkness Adjust Mode.” The DARKEN light turns on.
4. Press the UP or DOWN key to adjust the current setting.
5. Press PAUSE to resume printing; check the new setting.
6. Repeat steps 2 through 5 for further adjustment.
7. When darkness is correct, press PAUSE once and MODE three times. The MODE lights will flash on and off to indicate that the settings have been saved in memory.
8. Press PAUSE to resume printing. Monitor the new setting, adjusting if necessary.

Adjusting the Tear-Off Position

This procedure sets the rest position of the media over the Tear Bar after printing. The possible adjustment range is approximately plus or minus 80 dot rows. Power need not be turned off to reset this parameter.

NOTE: The printer configuration label reports the actual number of dot rows, not the number of presses of the buttons used for adjustment.

1. Press the MODE key twice. The PAUSE and POSITION lights turn on.
2. Press the UP or DOWN key to adjust the current setting.
3. Press the MODE key twice. The MODE lights will flash on and off to indicate that the settings have been saved in memory.
4. Press PAUSE to exit the PAUSE mode; the PAUSE light turns off.

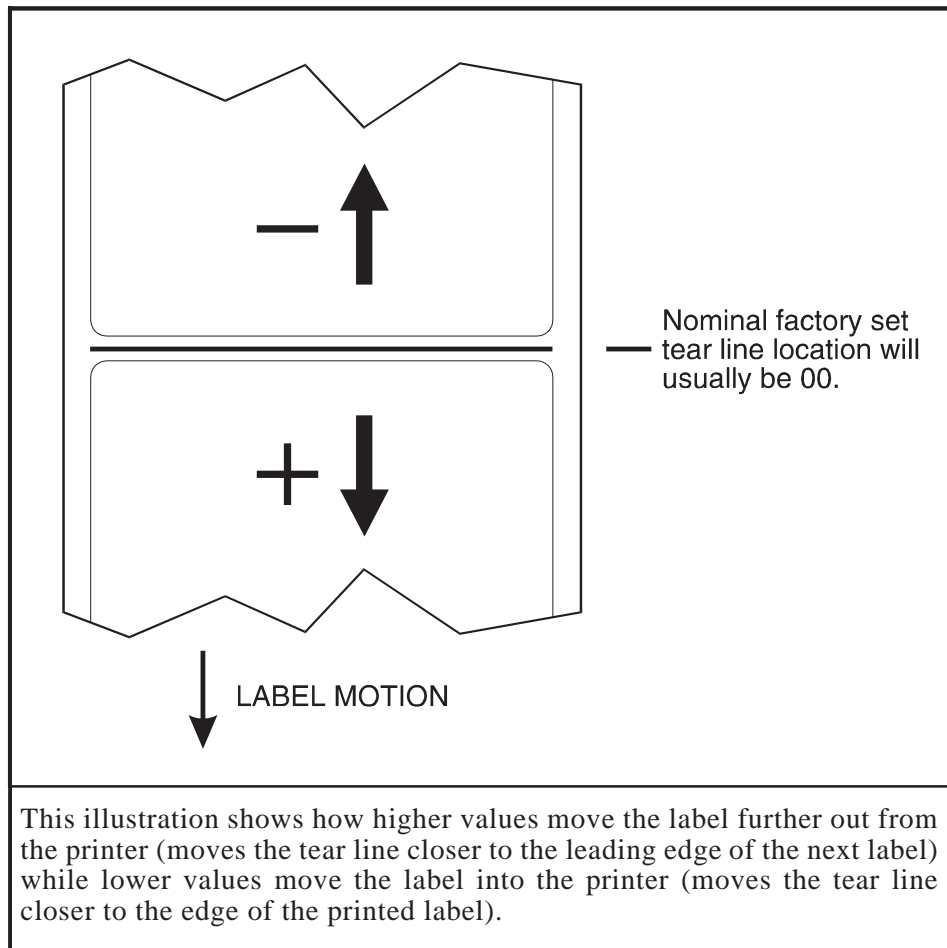


Figure 2.8 Tear-Off Position Adjustment

Adjusting the Position of the Top of the Label

1. Press the MODE key twice, then press and hold the MODE key for about five seconds, until the lights change. PAUSE, DARKEN, and CALIBRATE lights turn on.
2. Press the UP or DOWN key to adjust the current setting.
3. Press the MODE key twice. The MODE lights will flash on and off to indicate that the settings have been saved in memory.
4. Press PAUSE to exit the PAUSE mode; the PAUSE light turns off.

Adjusting the Media Sensor Positions

This sensor is not used if Black Mark sensing is selected.

NOTE: If you're using continuous media, do not perform this adjustment. Leave the media sensor at the factory-set position.

Non-continuous media has a notch or opening between each label. To monitor label movement you need to align the media sensor with this notch or opening.

The media sensor consists of two parts that must be properly aligned with the notch or edge of the label. The factory-set position should be sufficient for most applications. If not, perform the appropriate adjustments.

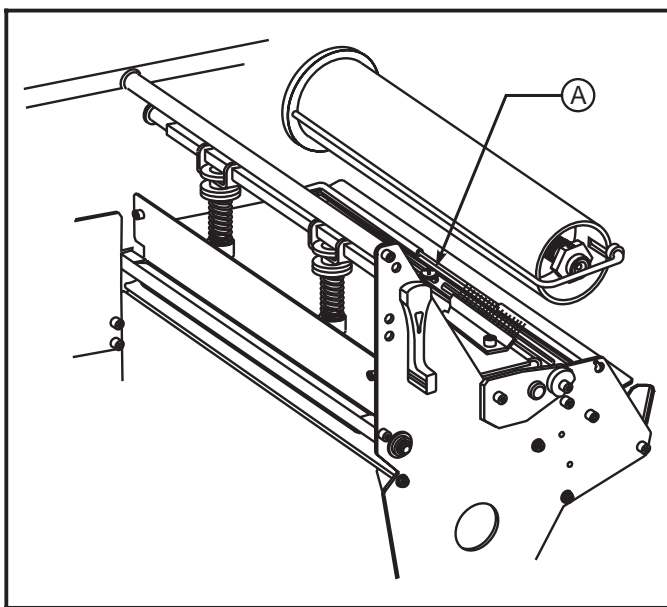
Adjusting the Upper Media Sensor

To adjust for the inside half of the media:

1. Remove the ribbon. Locate the upper media sensor (Figure 2.9-A).
2. Loosen, but do not remove, the Phillips head screw.
3. Slide the upper sensor along the slot to any position along the web, except where the rounded corners of the label are detected. When using tag stock, position the upper sensor directly over the hole or notch.
4. Tighten the screw.

To adjust for the outside half of the media (160S ONLY):

1. Remove the ribbon. Locate the upper media sensor (Figure 2.9-A).
2. Remove the printer's left side panel and reroute the media sensor cable to provide additional slack.
3. Remove the Phillips head screw to release the upper section of the sensor and wire cover.
4. Lift the upper media sensor assembly and move the sensor and the wire cover to the outside half. Carefully pull the wires through the tie wrap. You may need to set aside the sensor wire cover if the adjustment is far to the outside.
5. Replace and tighten the Phillips head screw.
6. Make sure the wires are routed back into the groove of the media sensor bracket.
7. Replace the printer's left side panel.

**Figure 2.9 Upper Media Sensor**

Lower Media Sensor Adjustment

1. Locate the lower media sensor assembly under the rear idler roller (Figure 2.10-A). (It is a spring clip holding a circuit board.)
2. Slide the sensor until the two brass-colored infrared emitters are under the upper media sensor. Gently pull wires out as needed (wires should have a little slack).
3. **NOTE:** If the sensor is being moved inward and a large loop of wire develops, remove the cover from the electronics side of the printer and gently pull the wires through. Clamp the wires so that they do not rub any belts.

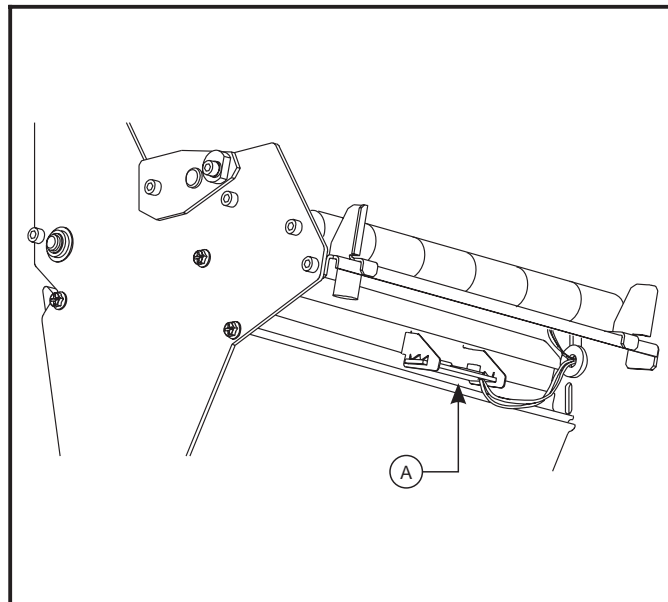


Figure 2.10 Lower Media Sensor

Option Switches

These switches are located above the signal interface cable connector. See Figure 2.11.

In the following tables, “R” means the switch is in the right position, while “L” means the switch is in the left position. Refer to Figure 2.12.

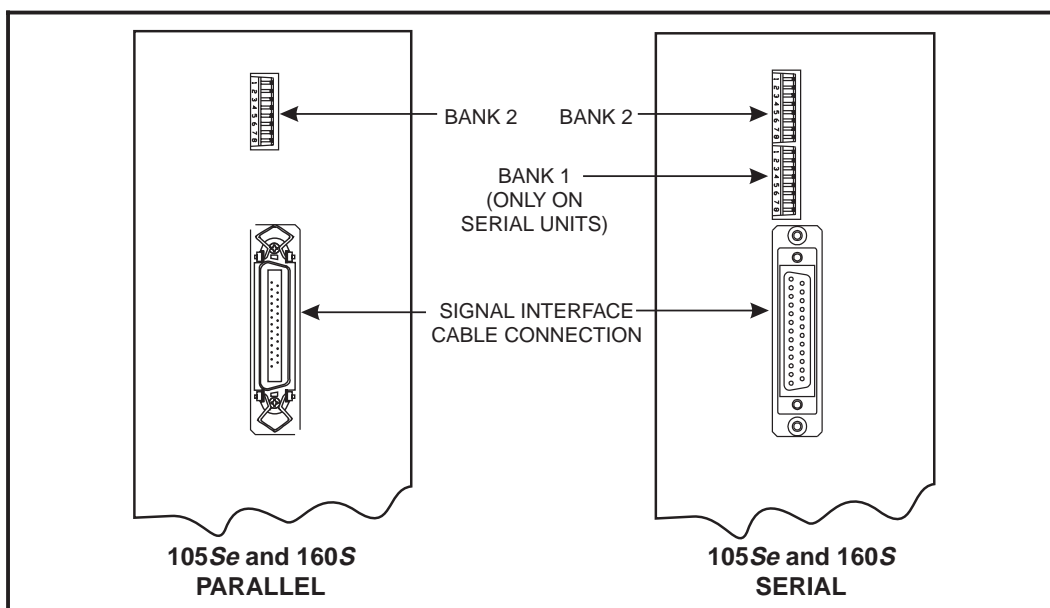


Figure 2.11 Option Switch Locations

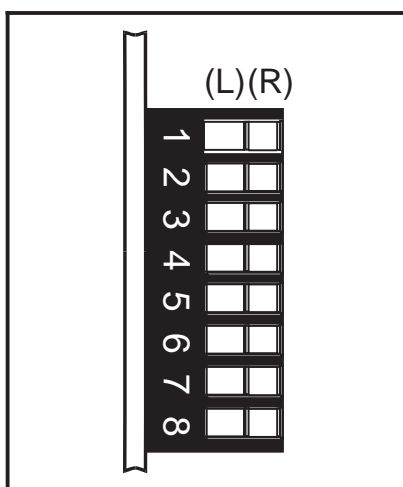


Figure 2.12 Option Switches

Bank 1 (Serial interface printers only)

NOTE: Parallel interface printers do not have Bank 1 switches since they are not required. Bank 1 switches must be properly positioned to establish serial data communications with the host computer. Once communications are established, do not change the position of these switches.

Bank 1	
Switch 3 2 1	Baud Rate
R R R	9600
R R L	19200
R L R	110
R L L	300
L R R	600
L R L	1200
L L R	2400
L L L	4800
Switch 4	Data Bits (Must be set to 8 data bits for Code Page 850)
R	7
L	8
Switch 6 5	Parity
R R	Even parity
R L	Parity disabled
L R	Odd parity
L L	Parity disabled
Switch 7	Communication Handshake Control
R	XON/XOFF control
L	DTR/DSR control
Switch 8	Error Detection Protocol
R	No error detection
L	Error detection active

Bank 2

These switches can manually override any ZPL commands that affect print mode, media mode, and media type. They can also override settings established during the calibration procedure.

If you do not want to override ZPL or the calibration settings, disable one or more of the options by setting switches 1, 4, and/or 7 to the “R” position and turn the power on. With these disabled, the printer will require ZPL commands to set print mode, media mode, and/or media type.

To override, set the switches to one of the modes shown in the table. If you are in the process of printing, this change takes affect on the next label printed. If you change the switches from active to disabled after printer power-up, the printer remains in the current mode until a ZPL command changes the mode.

Bank 2	
Switch 3 2 1	Print Mode
R R L	Cutter
R L L	Tear Off
L R L	Peel Off
L L L	Rewind
- - R	Disabled
Switch 6 5 4	Media Mode
R R L	Non-continuous mark sense
R L L	Non-continuous web sense
L L L	Continuous
- - R	Disabled
Switch 8 7	Media Type
R L	Thermal transfer
L L	Direct thermal
- - R	Disabled

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Built into the Zebra S-Series Printers are test routines to aid the technician in diagnosing faults.

Power ON Self Test

A Power ON Self Test (POST) is performed each time the printer is turned ON. This test checks for proper initialization of various electronic circuits and establishes starting parameters as those stored in the printer's memory. During this test sequence, the front panel LEDs will turn ON and OFF to insure proper operation.

At the end of this self test, only the POWER LED will remain lit. If other LEDs remain lit, refer to *Troubleshooting* in this manual.

Printer Self Tests

These self tests produce sample labels and provide specific information which helps determine the operating conditions for the printer.

Each self test is enabled when a front panel key is pressed while the printer's AC Power Switch is turned ON. Keep the key pressed until the front panel LEDs turn ON.

When the Power On Self Test is completed, the selected printer self test will start automatically.

NOTES: It is recommended that full width media be used when performing these tests. Labels less than full width in size will lose printing on the right side. Label length will determine the amount of printing starting at the top of the label.

When performing these self tests while in the Peel-Off Mode, the operator must remove the labels as they become available.

When canceling a self test prior to its actual completion, always turn the printer power OFF and then back ON to reset the printer.

Some of the printer self tests produce labels at varying print speeds. These speeds may be referred to as “inches per second,” “millimeters per second,” or by alphabetic letter designation (i.e., “A,” “B,” “C,” etc.). The following chart shows the relationships between the different speeds.

Letter Designation	Inches per Second	Millimeters per Second
A*	2"	51 mm
B	3"	76 mm
C	4"	102 mm
	5"	127 mm
D	6"	152 mm

* Speed “A” for the 105S and 105Se with the optional 300 dots-per-inch printhead is 2.4" (61 mm).

CANCEL Key Self Test

This self test prints a single label which contains a listing of the printer's current configuration parameters stored in Configuration (EEPROM) Memory. Press the CANCEL Key while turning the AC Power Switch ON. A sample label is shown in Figure 3.1.

The printer configuration may be changed temporarily for specific label formats or ribbon and label stock, or permanently by saving the new parameters in EEPROM Memory. Saving new parameters occurs whenever a printer configuration procedure is performed. Refer to *Getting Ready to Print* for further details on the Printer Configuration procedure.

PRINTER CONFIGURATION	
+30.....	DARKNESS
+0.....	TEAR OFF
CUTTER.....	PRINT MODE
NON-CONTINUOUS.....	MEDIA TYPE
MARK.....	SENSOR TYPE
THERMAL-TRANS.....	PRINT METHOD
104 0/8 MM.....	PRINT WIDTH
1230.....	LABEL LENGTH
39.0IN 988MM.....	MAXIMUM LENGTH
MAIN RS232.....	HOST PORT
NONE.....	Z-NET PORT
19200.....	BAUD
8 BITS.....	DATA BITS
NONE.....	PARITY
1 STOP BIT.....	STOP BITS
XON/XOFF.....	HOST HANDSHAKE
NONE.....	PROTOCOL
000.....	NETWORK ID
NORMAL MODE.....	COMMUNICATIONS
< > 7EH.....	CONTROL PREFIX
<^> 5EH.....	FORMAT PREFIX
<, > 2CH.....	DELIMITER CHAR
FEED.....	MEDIA POWER UP
FEED.....	HEAD CLOSE
DEFAULT.....	BACKFEED
+000.....	LABEL TOP
+0000.....	LEFT POSITION
038.....	WEB S.
075.....	MEDIA S.
058.....	RIBBON S.
092.....	MARK S.
092.....	MARK MED S.
000.....	MEDIA LED
000.....	RIBBON LED
000.....	MARK LED
DPCS.....	MODES ENABLED
.....	MODES DISABLED
832 8/MM FULL.....	RESOLUTION
.....	SOCKET 1 ID
.....	SOCKET 2 ID
V21.X.X.....	FIRMWARE
CUSTOMIZED.....	CONFIGURATION
1024k.....	MEMORY
NONE.....	B: MEMORY

FIRMWARE IN THIS PRINTER IS COPYRIGHTED

Figure 3.1 CANCEL Key Self Test Label

PAUSE Key Self Test

Enter this self test mode by pressing the PAUSE Key while turning the AC power ON.

This self test consists of eight separate test sequences, printing labels at both Speed “A” and Speed “D” (“C” for the 300-dpi 105S and 105Se). During the first four test sequences, the printer simulates the “Tear-Off” mode and backfeeds the media prior to printing each label. During the last four test sequences, the printer simulates the “Rewind” mode and does not backfeed the media.

This self test can be used to print the test labels required when making adjustments to the printer’s mechanical assemblies. These test labels can also be printed when required during the Configuration and Calibration processes described in *Getting Ready to Print*. See the label example in Figure 3.2.

NOTE: If the Take Label Sensor pair is mounted on the front of the printer, “PEEL OPTION INSTALLED” will be printed on the first label. During the first four test sequences, each label must be manually removed from the sensor path before the next label will print. During test sequences five through eight, the Take Label Sensor pair is not enabled and continuous printing occurs.

To bypass the first four sequences, press the PAUSE Key; then tear off the first printed label. Once the label is removed, the printer will enter the PAUSE mode.

Press the CANCEL Key four times and make sure the Data LED flashes once each time. Press the PAUSE Key once to start test sequence five.

1. The initial test sequence prints 15 labels at speed “A” then automatically PAUSES the printer. Another 15 label sequence will start if the PAUSE Key is pressed to permit printing.
2. While the printer is PAUSED, press the CANCEL Key once to select the second self test sequence. Now each time the PAUSE Key is pressed, the printer prints 15 labels at speed “D” (“C” for the 300-dpi 105S and 105Se). Another 15 label sequence will start if the PAUSE Key is pressed to permit printing.
3. While the printer is PAUSED, press the CANCEL Key once to select the third self test sequence. Now each time the PAUSE Key is pressed, the printer prints 50 labels at speed “A”. Another 50 label sequence will start if the PAUSE Key is pressed to permit printing.
4. While the printer is PAUSED, press the CANCEL Key once to select the fourth self test sequence. Now each time the PAUSE Key is pressed, the printer prints 50 labels at speed “D” (“C” for the 300-dpi 105S and 105Se). Another 50 label sequence will start if the PAUSE Key is pressed to permit printing.
5. Self Test sequences five through eight are the same as sequences one through four but simulate the “Rewind” mode of operation by not backfeeding at the beginning of each label. In addition, the Take Label Sensor pair is disabled during these test sequences so labels do not need to be removed individually.

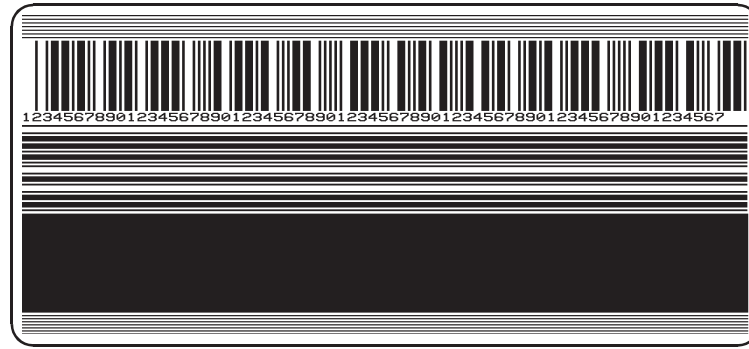


Figure 3.2 PAUSE Key Self Test Label

FEED Key Self Test

The CANCEL Key Self Test should be performed prior to this Self Test.

Information on the printed “Configuration” Label (CANCEL Key Self Test) will be used with the results of this self test to determine the best Darkness Setting for a specific media/ribbon combination.

The FEED Key Self Test Label will print out at various PLUS or MINUS darkness settings relative to the darkness value shown on the configuration label. Inspect these labels and determine which one has the best darkness setting for the application. See the example in Figure 3.3.

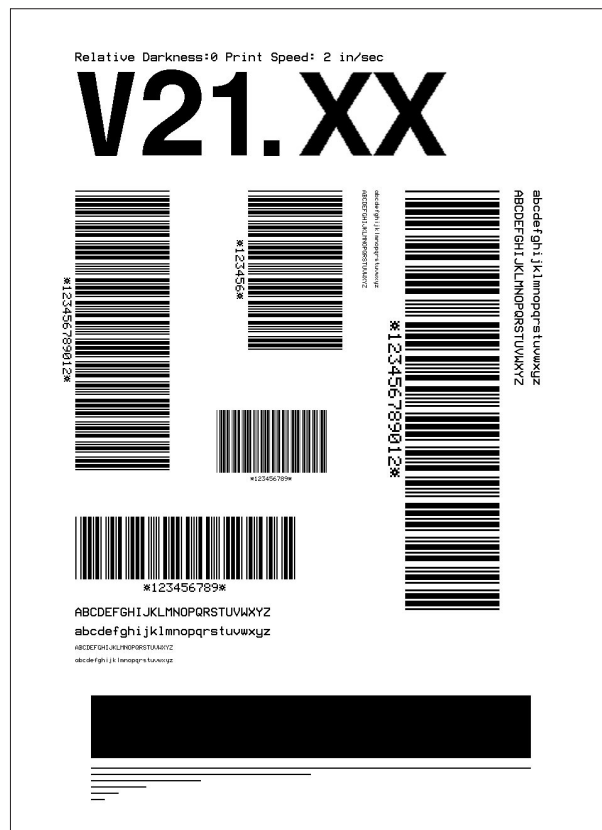


Figure 3.3 FEED Key Self Test Label

The value printed on that label is added to (plus) or subtracted from (minus) the “Darkness” value specified on the Configuration Label.

The resulting numeric value (0 to 30) is the best darkness value for that specific media/ribbon combination.

The value selected can be entered while performing a Media Darkness Adjustment. The PLUS value can be entered by pressing the UP (FEED) Key, while the MINUS value is entered by pressing the DOWN (CANCEL) Key the appropriate number of times. Refer to the Calibration processes described in *Getting Ready to Print*.

Optionally, the required relative darkness value can be programmed into the ZPL II label formats sent to the printer.

MODE Key Self Test

This self test places the printer in the Communications Diagnostics Mode.

Press the MODE Key while turning the AC power switch ON, then send a label format to the printer. In this mode, the printer prints the ASCII characters and their corresponding hexadecimal values for any data received from the host computer. See the example in Figure 3.4.

NOTE: Turn the printer’s power OFF to exit this self test.

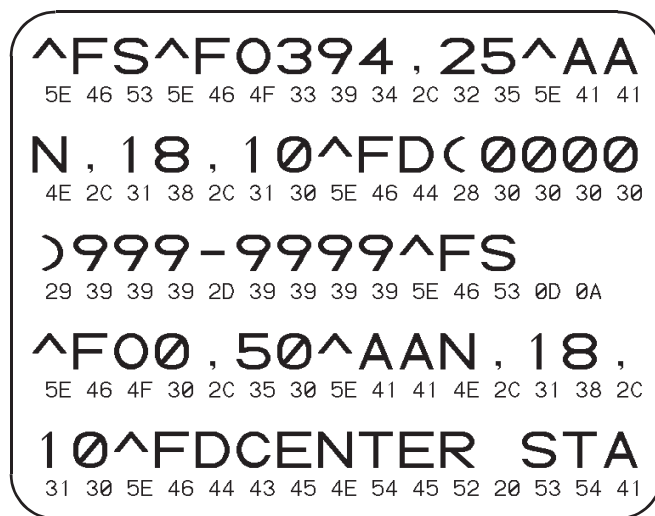


Figure 3.4 MODE Key Self Test Label

FEED, PAUSE, and CANCEL Keys

If these three keys are held depressed at the same time and the power is turned ON, the printer will enter the Media Sensor and Ribbon Sensor Sensitivity Adjustment Mode. See *Corrective Maintenance* for these adjustments.

PAUSE Key and CANCEL Key

This self test can be used to verify proper printer operation after parts have been replaced or adjusted. When activated, the printer prints a maximum of 500 Head Test Labels. Each label backfeeds prior to printing and feeds forward to the rest position after printing. A serialized number will print on each label. Press the PAUSE Key or turn the printer power OFF to stop printing. Refer to Figure 3.6.

FEED Key and CANCEL Key

This self test is normally performed during the manufacturing process or after a major overhaul of the mechanical assemblies. This test prints seven pre-programmed label formats, first at Speed “D,” then the same formats at Speed “A.” The printer will automatically pause after each format. The sequence of label formats is shown below. Refer to Figures 3.7 through 3.13.

FORMAT	PRINTING	TEST FUNCTION
1	20 at Speed D	Left Ribbon Wrinkle Test
2	20 at Speed D	Right Ribbon Wrinkle Test
3	20 at Speed D	Bar Code Wrinkle Test (Code-39)
4	20 at Speed A	Left Ribbon Wrinkle Test
5	20 at Speed A	Right Ribbon Wrinkle Test
6	20 at Speed A	Bar Code Wrinkle Test (Code-39)
7	10 at Speed D	Usable Area Test
8	10 at Speed D	Head Temperature Test
9	10 at Speed D	Upper Smear Test
10	10 at Speed D	Lower Smear Test
11	10 at Speed A	Usable Area Test
12	10 at Speed A	Head Temperature Test
13	10 at Speed A	Upper Smear Test
14	10 at Speed A	Lower Smear Test

FEED Key and PAUSE Key

Pressing these two keys at the same time, while turning the power ON, temporarily resets the printer configuration to the factory default values. These values will be active until power is turned OFF. If the factory default conditions are to be used on a permanent basis, save them by pressing the MODE Key four times - MODE LEDs cycle ON then OFF. **A Media Calibration procedure must be performed after factory default values are saved.** Figure 3.5 indicates which printer function controls each of the configuration parameters.

Parameter	Controlled By
Darkness	Front Panel Adjustment or ZPL II
Tear Off Adjust	Front Panel Adjustment
Web Sensor	Front Panel Calibrate or ZPL II
Media Sensor	Front Panel Calibrate or ZPL II
Ribbon Sensor	Front Panel Calibrate or ZPL II
Mark Media Sensor	DIP Switches or ZPL II
Mark Sensor	Front Panel Calibrate or ZPL II
Media LED	Front Panel Calibrate or ZPL II
Ribbon LED	Front Panel Calibrate or ZPL II
Mark LED	Front Panel Calibrate or ZPL II
Label Length	Front Panel Calibrate or ZPL II
Max Label Length	ZPL II Controlled
Print Width	ZPL II Controlled
Print Mode	DIP Switches or ZPL II Controlled
Media Type	Front Panel Calibrate, DIP Switches or ZPL II
Print Method	Front Panel Calibrate, DIP Switches or ZPL II
Host Port	Firmware Controlled
Network Port	Firmware Controlled
Baud	DIP Switches
Data Bits	DIP Switches
Parity	DIP Switches
Stop Bits	Firmware Controlled
Handshake	Dip Switches
Protocol	Dip Switches
Delimiter	ZPL II Controlled
Format Prefix	ZPL II Controlled
Control Prefix	ZPL II Controlled
Network ID	ZPL II Controlled
Modes Enabled	ZPL II Controlled
Modes Disabled	ZPL II Controlled
Resolution	ZPL II Controlled
Backfeed	ZPL II Controlled
Label Top	Front Panel Calibrate or ZPL II
Left Position	ZPL II Controlled
Socket 1 ID	EPROM
Socket 2 ID	EPROM
Firmware	Firmware Controlled
Configuration	Firmware Controlled
Memory	Functioning Memory
B: Memory	Firmware Controlled
Media Power Up	ZPL II Controlled
Media Head Close	ZPL II Controlled

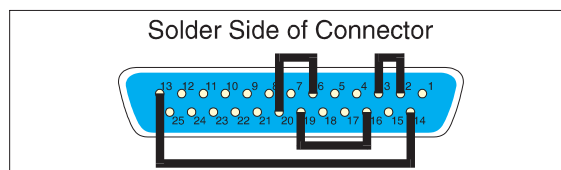
Figure 3.5 Configuration Parameter Controls

Extended Printer Diagnostics

Additional diagnostic tests are available for printhead assembly adjustments. These diagnostics tests are only accessible when the data interface cable is disconnected from the printer and a Loopback Connector is attached in its place.

The Serial Loopback Connector is a 25-pin “D” type (DB25P-Male) style with the following pins tied together.

- pins 2 and 3
- pins 6 and 20
- pins 13 and 14
- pins 16 and 19



The Parallel Loopback Connector is a standard 36-pin parallel connector mounted to a small circuit board. This connector is available from Zebra Technologies as Part # 44680.

For each of these diagnostic tests, the printer will “transmit” the test label format out of the Data Interface Connector to the Loopback Connector. The Loopback Connector passes the test label format back to the printer as “receive” Data and the test label is printed.

PAUSE Key Loopback Test

This test demonstrates the media movement capabilities of the printer and provides a test label to view while making print quality adjustments.

With the Loopback Connector in place, press the PAUSE Key while turning the AC Power Switch ON.

After the Power On Self Test, the printer will print 500 Head Test labels. Each label will backfeed prior to printing and feed to the rest position after printing.

A serialized number will print on each label for label comparison purposes if required. See the example in Figure 3.6.

The PAUSE Key can be used to stop and restart the printing operation.

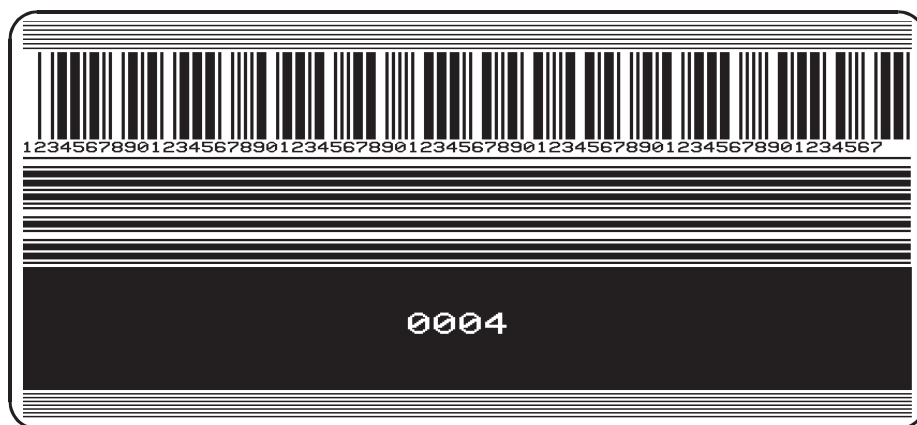


Figure 3.6 PAUSE Key Loopback Test Label

FEED Key Loopback Test

With the Loopback Connector in place, press the FEED Key while turning the AC Power Switch ON.

After the POST, the printer will begin printing a series of label formats as shown in the chart below. The printer will PAUSE at the end of each printed format. Press the PAUSE Key to begin printing the next format. Refer to the label examples in Figures 3.7 through 3.13.

The PAUSE Key can be used to stop and restart the printing operation. When the printer is paused, the CANCEL Key can be used to move to the next label format.

FORMAT	PRINTING	TEST FUNCTION
1	20 at Speed D*	Left Ribbon Wrinkle Test
2	20 at Speed D*	Right Ribbon Wrinkle Test
3	20 at Speed D*	Bar Code Wrinkle Test (Code-39)
4	20 at Speed A	Left Ribbon Wrinkle Test
5	20 at Speed A	Right Ribbon Wrinkle Test
6	20 at Speed A	Bar Code Wrinkle Test (Code-39)
7	10 at Speed D*	Usable Area Test
8	10 at Speed D*	Head Temp Test
9	10 at Speed D*	Upper Smear Test
10	10 at Speed D*	Lower Smear Test
11	10 at Speed A	Usable Area Test
12	10 at Speed A	Head Temp Test
13	10 at Speed A	Upper Smear Test
14	10 at Speed A	Lower Smear Test

* "C" for the 105S and 105Se with the 300 dots/inch printhead

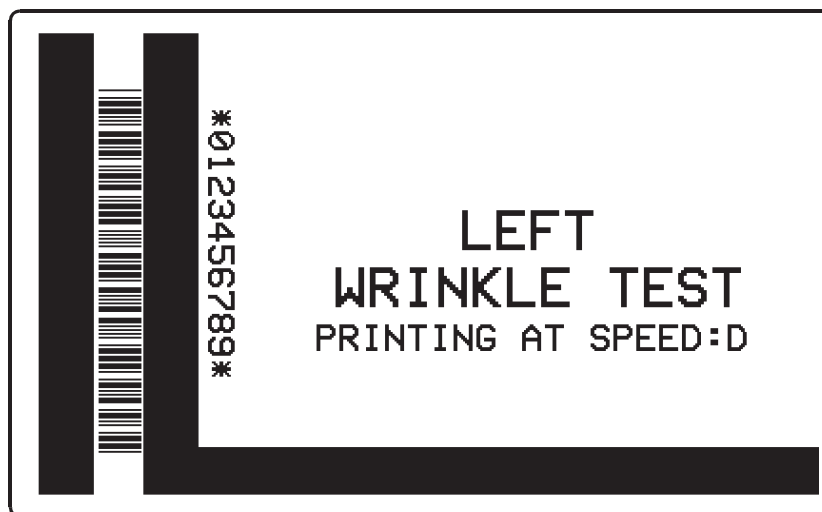


Figure 3.7 Format 1 (8) Test Label

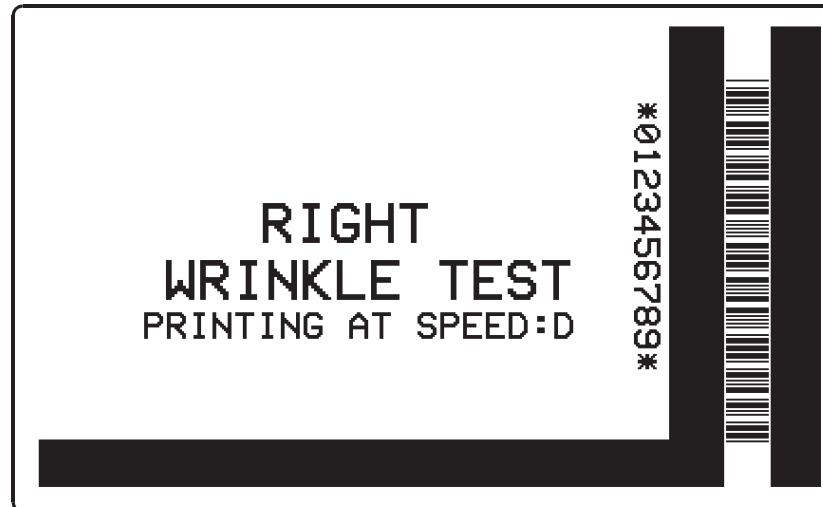


Figure 3.8 Format 2 (9) Test Label

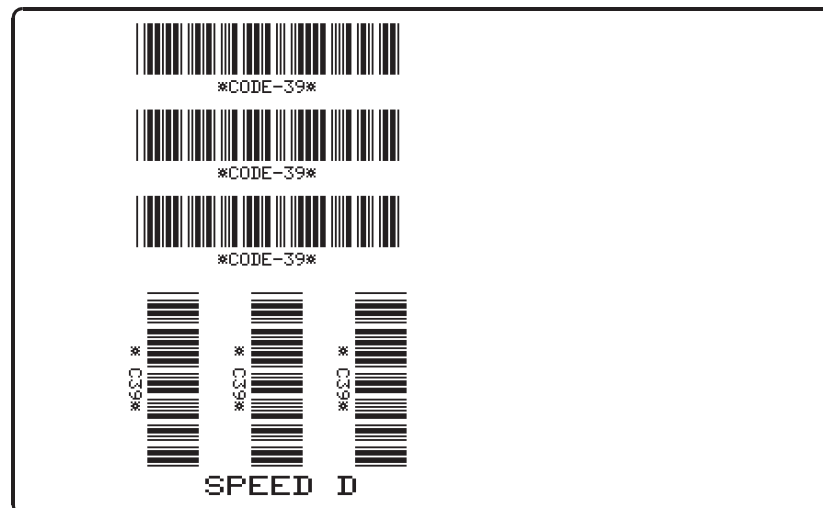


Figure 3.9 Format 3 (10) Test Label

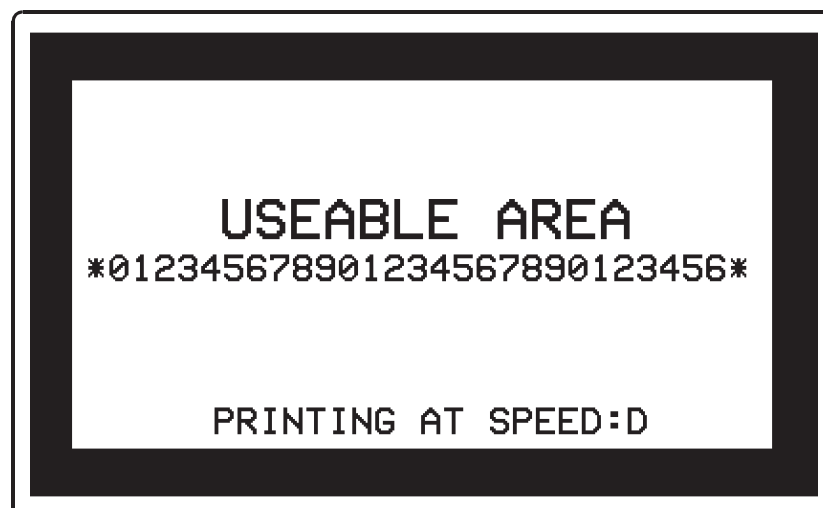


Figure 3.10 Format 4 (11) Test Label

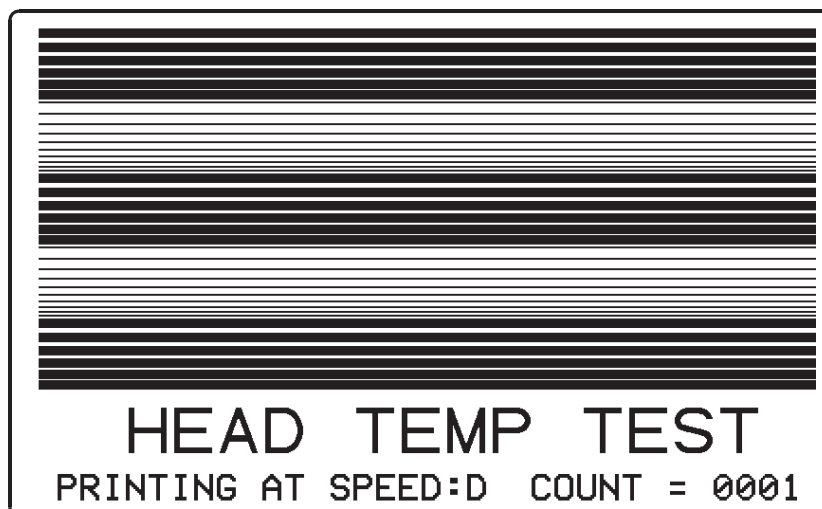


Figure 3.11 Format 5 (12) Test Label

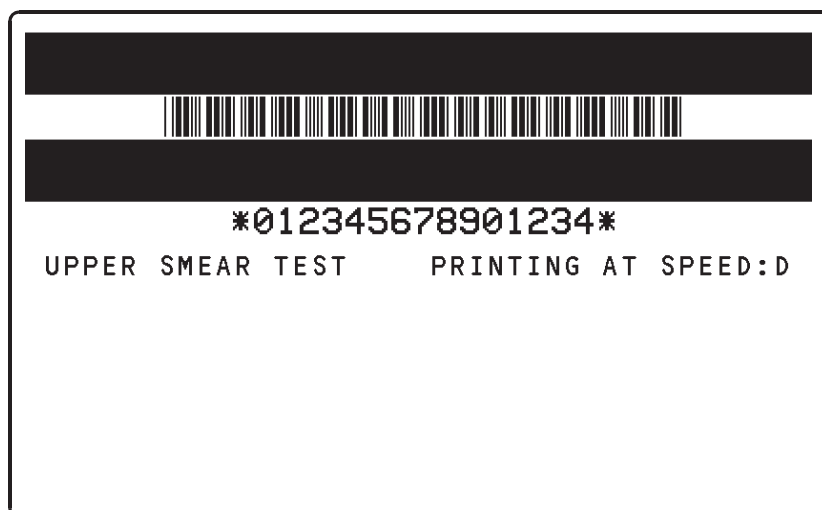


Figure 3.12 Format 6 (13) Test Label

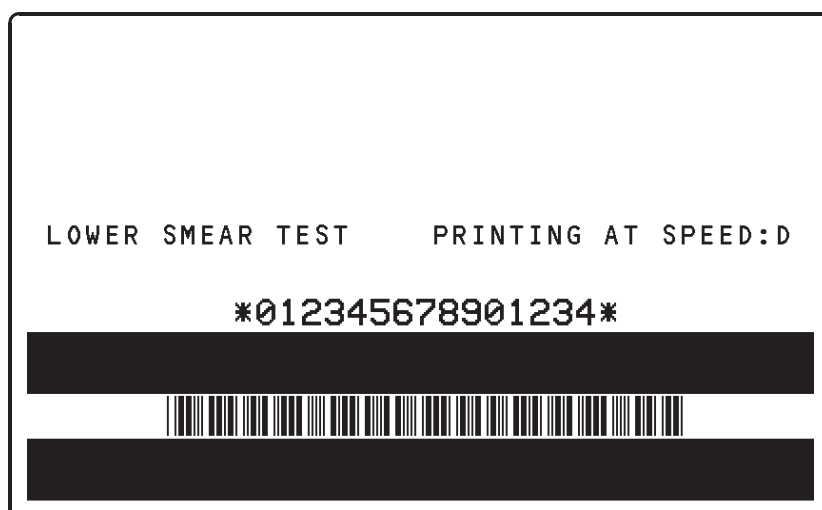


Figure 3.13 Format 7 (14) Test Label

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Field Maintenance Functions

Field maintenance functions for the Zebra S-Series printer can be divided into two basic categories.

- This section of the manual contains preventive maintenance procedures and operator care instructions. Preventive maintenance consists of a visual inspection and general cleaning of the interior and exterior of the unit and printhead. These procedures may be performed by the operator and should be performed on a regular basis.
- Corrective maintenance, described in *Corrective Maintenance*, provides detailed steps for resolving faults. Repairs are accomplished by replacement of components or modules or by adjustments.

Tools Required

To properly perform the preventive maintenance tasks, the service technician should be equipped with the following:

- Applicators
- 70% isopropyl alcohol
- Citrus-based cleaner

WARNING

Unless indicated otherwise, turn power OFF before performing maintenance procedures.

Cleaning the S-Series Printer

EXTERIOR — The exterior surfaces of the S-Series printer may be cleaned with a lint-free cloth. **DO NOT** use solvents or harsh cleaning agents. If the unit is excessively dirty, a mild detergent solution or desktop cleaner may be used sparingly.

INTERIOR — As required, remove any dirt/lint accumulated in the interior of the printer using a soft bristle brush and/or vacuum cleaner. It is a good practice to inspect these areas after every fourth roll of media.

Cleaning the Printhead

Inconsistent print quality such as blank areas in the bar codes or graphics may indicate a dirty printhead. For optimum performance, the printhead should be cleaned regularly. When printing in direct thermal mode, perform the following cleaning procedure after every roll of media (or 500 feet of fanfold media). When printing in the thermal transfer mode, clean after every roll of ribbon.

NOTE: It is not necessary to turn the printer OFF prior to cleaning. All label formats, images, and parameter settings stored in the printer's memory will be lost if the printer is turned OFF. If the printer is turned OFF, it may be necessary to reload some items into the printer's memory.

1. Open the printhead by moving the Latching Lever to the OPEN position.
2. Remove the media and ribbon (if present).
3. Use an applicator moistened with 70% isopropyl alcohol to wipe the print elements from end to end. (Refer to Figure 4.1. The print elements are the brown strip just behind the chrome strip.) Allow a few seconds for the solvent to evaporate.
4. Rotate the Platen Roller and clean thoroughly with isopropyl alcohol.
5. Brush or vacuum any accumulated paper lint and dust away from the rollers and the Media and Ribbon Sensors.
6. Reload ribbon and/or media, close and latch the printhead, and continue printing.

Cleaning the Snap Plate

In the event of a label jam, the Media Guide Plate (Snap Plate) can be removed and cleaned. Refer to Figure 4.2 and follow these steps.

1. Open the Printhead to its fully open position by rotating the Latching Lever counterclockwise. The Printhead pivots to an almost vertical position.
2. From the front of the printer, pop up the front edge of the Snap Plate using your fingernail or a flat-blade screwdriver.
3. Lift the front edge of the Snap Plate while pulling it up and out of the print mechanism.
4. Clean the Snap Plate, including the raised area directly below the ribbon sensor. Remove any stuck labels and use a citrus-based cleaner to remove any built-up adhesive.

CAUTION

Incorrect installation of the Snap Plate can disable the Ribbon Sensor or cause head pressure imbalance.

5. Replace the Snap Plate by placing the back legs in the openings in the Main Media Guide while sliding it to the rear of the openings and snapping it down into place. Refer to Figure 4.2.

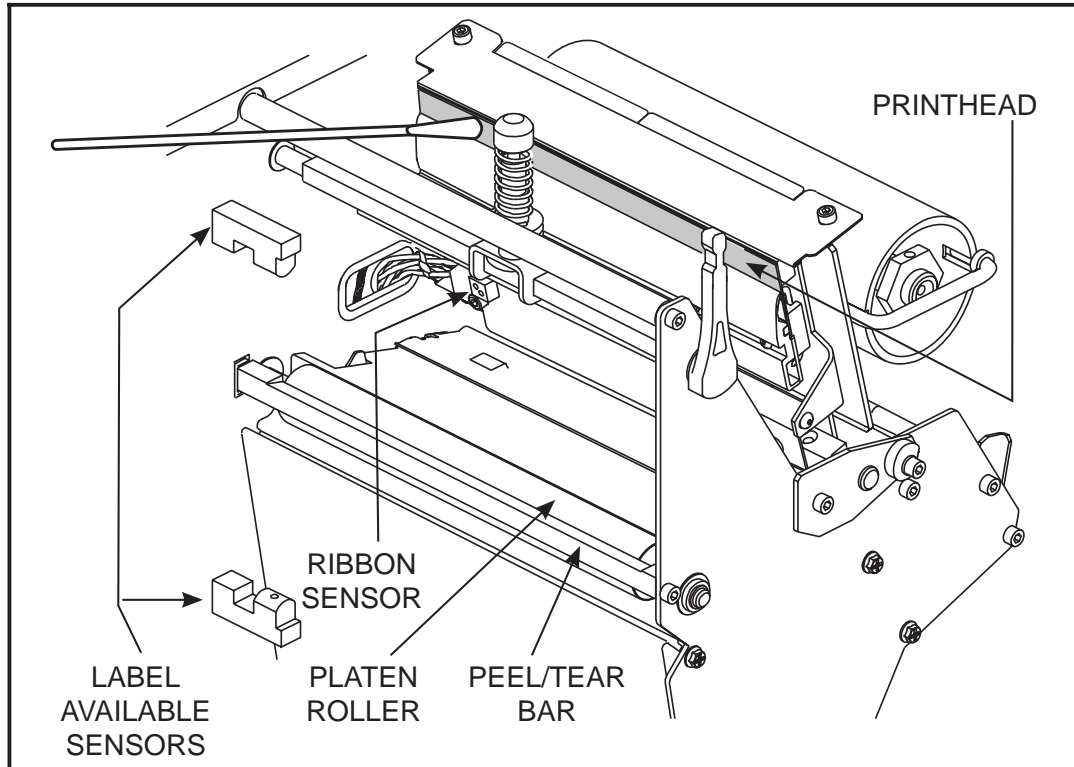


Figure 4.1 Printhead Cleaning

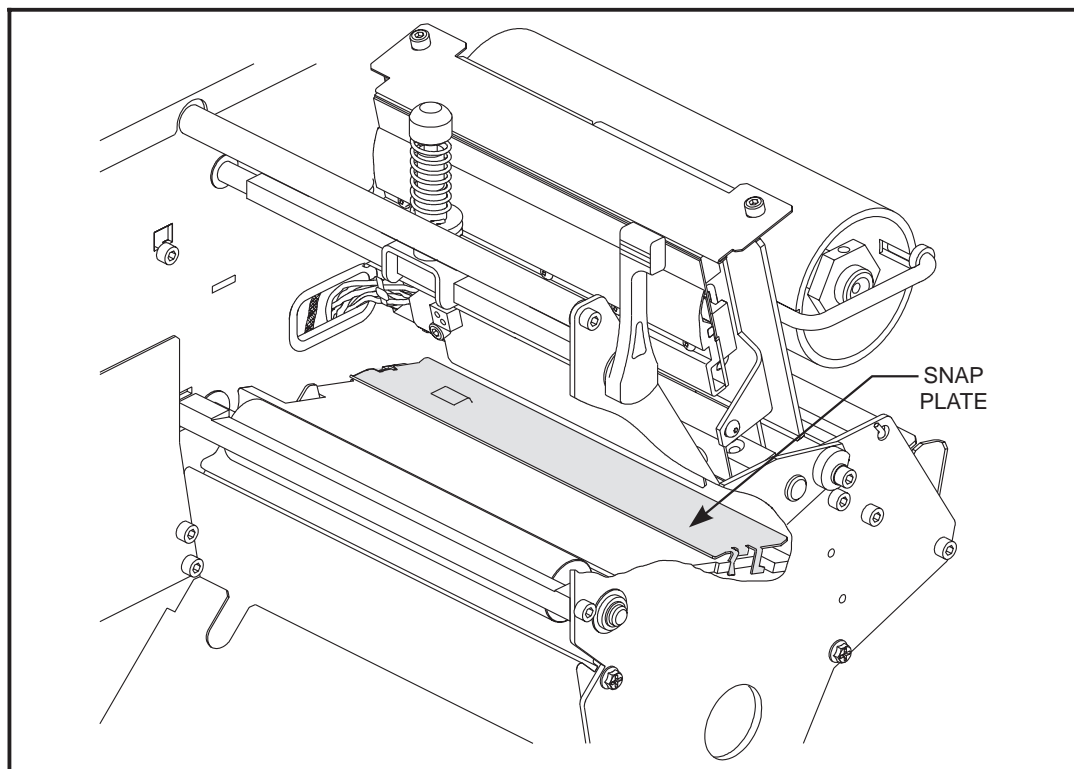


Figure 4.2 Snap Plate Cleaning

Cleaning the Cutter Module

Periodically, the Cutter Module should be cleaned to remove paper dust and label residue. Refer to Figure 4.3.

Clean the stationary cutter blade with a cotton swab moistened with a citrus-based cleaner when it becomes gummed up with label adhesive or paper debris. After cleaning, apply a small amount of petroleum lubricating grease to the moving cutter parts.

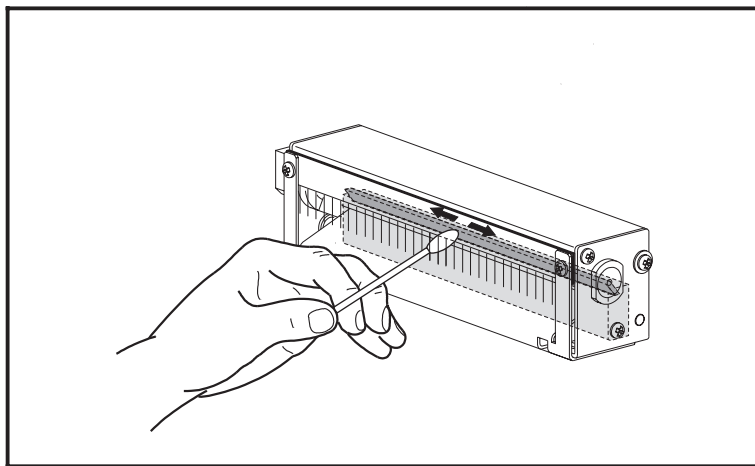


Figure 4.3 Cutter Blade Cleaning

Lubricating the Cutter Module

Certain applications or types of label stock may cause the cutter blades to eventually start to squeak. This commonly occurs when less-than-full width media is being used.

To eliminate the squeak and prolong cutter life, first turn off the printer. Next, clean the lower cutter blade by following the above procedure. Then, coat a cotton swab with a small amount of petroleum lubricating grease and wipe the swab along the top of the lower cutter blade and on the surface of the ring at the end of the rotary blade (refer to Figure 4.4).

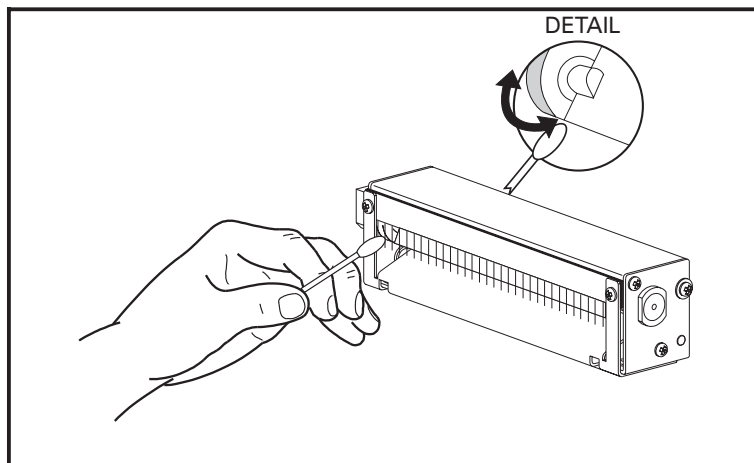


Figure 4.4 Cutter Module Lubrication

Recommended Preventive Maintenance Schedule

AREA	METHOD	INTERVAL
PRINthead	Isopropyl alcohol	When printing in the direct thermal mode: after every roll of media (or 500 feet of fanfold media).
PLATEN ROLLER	Isopropyl alcohol	
MEDIA SENSOR	Air blow	
MEDIA PATH	Isopropyl alcohol and cloth	When printing in the thermal transfer mode: after every roll of ribbon.
RIBBON SENSOR	Air blow	
PEEL ROLLER	Isopropyl alcohol	Once per month
LABEL AVAILABLE SENSOR	Air blow	Once per six months
RIBBON FEEDING PATH	Visual	Once per three months
DRIVE BELTS	Visual	Six months or 500 rolls
CUTTER BLADES	Citrus-based cleaner and/or air blow	As needed
MEDIA TAKE UP SPINDLE	<p>Formal preventive maintenance is not required on these spindles. Spindle tension should not be adjusted unless the printer is malfunctioning (i.e., spindles not rotating smoothly). The recommended tensions and adjustment procedures are provided in <i>Corrective Maintenance</i>.</p> <p>105S and 105Se printers: The spindles should be taken apart and the felt pads replaced with new ones presoaked in silicone oil (new felt pads and silicone oil are available in kit # 01688-140) per the following schedule:</p> <p>Media Supply and Take-Up Spindles - once per year or after 500 media rolls of media</p> <p>Ribbon Supply and Ribbon Take-Up Spindles - once per year or after 200 rolls of ribbon.</p> <p>160S printer: DO NOT lubricate these spindles.</p> <p>These spindles should only be disassembled and cleaned with alcohol if they fail to rotate smoothly.</p>	
RIBBON SUPPLY SPINDLE		
RIBBON TAKE UP SPINDLE		



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Tools Required

Test Equipment Required

[illegible][illegible]

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105S and 105Se Printhead Replacement

Refer to Figure 5.1 while performing the following procedure.

CAUTION

Observe proper electrostatic safety precautions when removing, handling, and replacing the Printhead.

1. Turn the printer OFF and remove the Power Cord.
2. Remove media and ribbon.
3. Properly connect yourself to an anti-static protection system.
4. Remove the Printhead Pressure Plate and the Static Removal Brush by removing the six (6) Allen head mounting screws. (Some printers may require the removal of two additional screws that mount the Static Removal Brush.)
5. Note the location of the grounding strap, and carefully hold the printhead and remove the four Phillips screws that hold it to the Mounting Bracket.
6. Holding the printhead stable, remove the electrical connector mounted at the back of the printhead.
7. Remove the old printhead.
8. **Prior to installing the new printhead, note the resistance value shown on the label located under the new printhead.**
9. Reconnect the electrical connector to the new printhead.
10. Fit the new printhead into the mounting bracket.

CAUTION

Ensure that the grounding strap is reattached by the printhead mounting screw.

11. Loosely install the four Phillips screws through the Printhead Bracket and the Printhead's aluminum body.
12. After verifying the Printhead is seated properly (Printhead Bracket Guide Pins are fitted into the guide holes on the 12 dots/mm Printhead), tighten the Phillips head mounting screws.
13. Reinstall the Pressure Plate and Static Removal Brush with the mounting screws.
14. Use the Preventive Maintenance Kit to clean the new printhead thoroughly.
15. Reinstall media and ribbon.
16. Connect the AC Power Cord and turn the printer power ON.
17. After the printer completes the Power On Self Test, refer to the Printhead Resistance value (noted in Step 8 above) and perform the Printhead Voltage Adjustment on pages 5-12 through 5-14.
18. Press the PAUSE Key while turning the printer power ON, and check the print quality of the test labels.

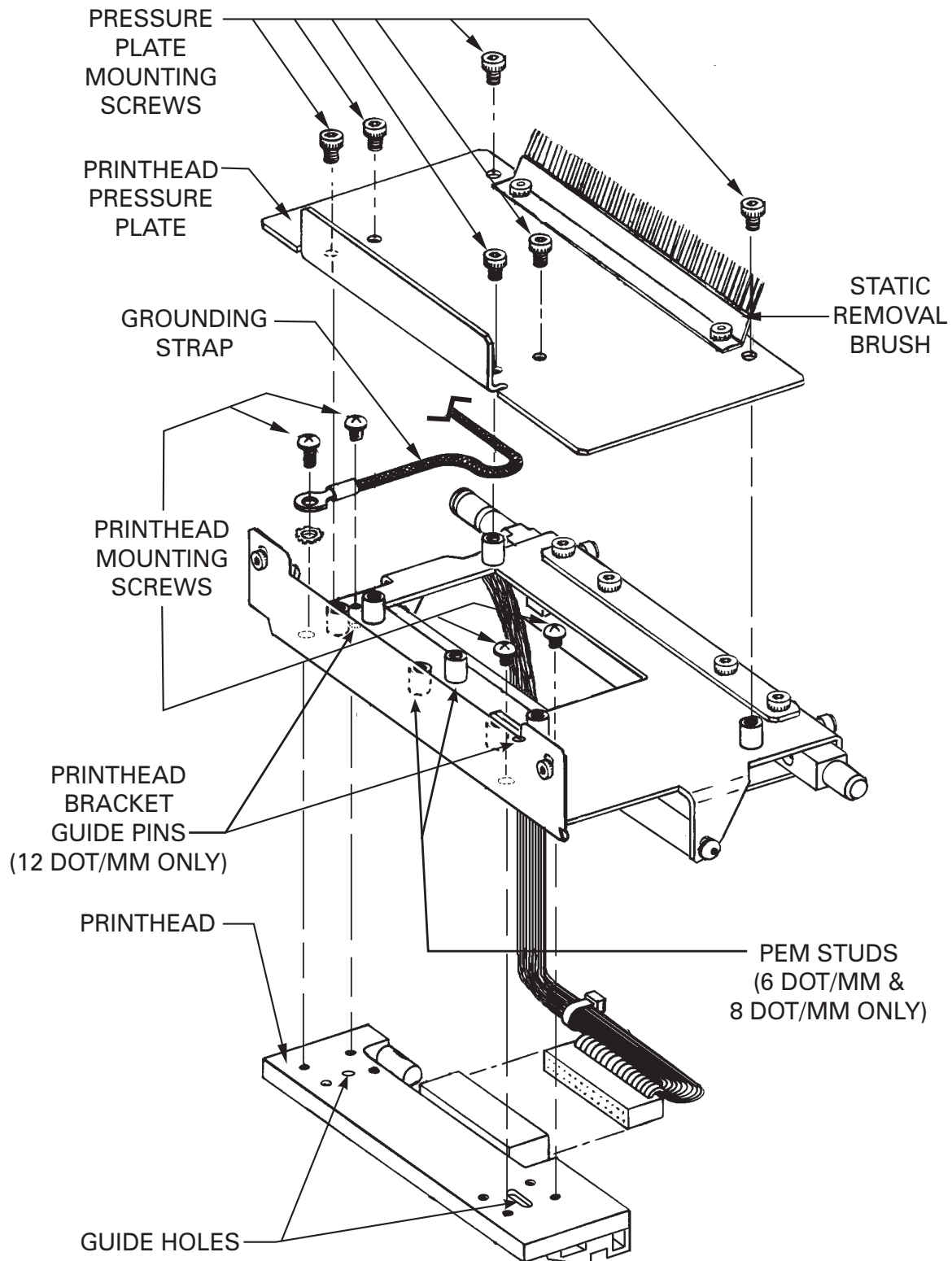


Figure 5.1 105S/105Se Printhead Replacement

160S Printhead Replacement

Refer to Figure 5.2 while performing the following procedure.

CAUTION

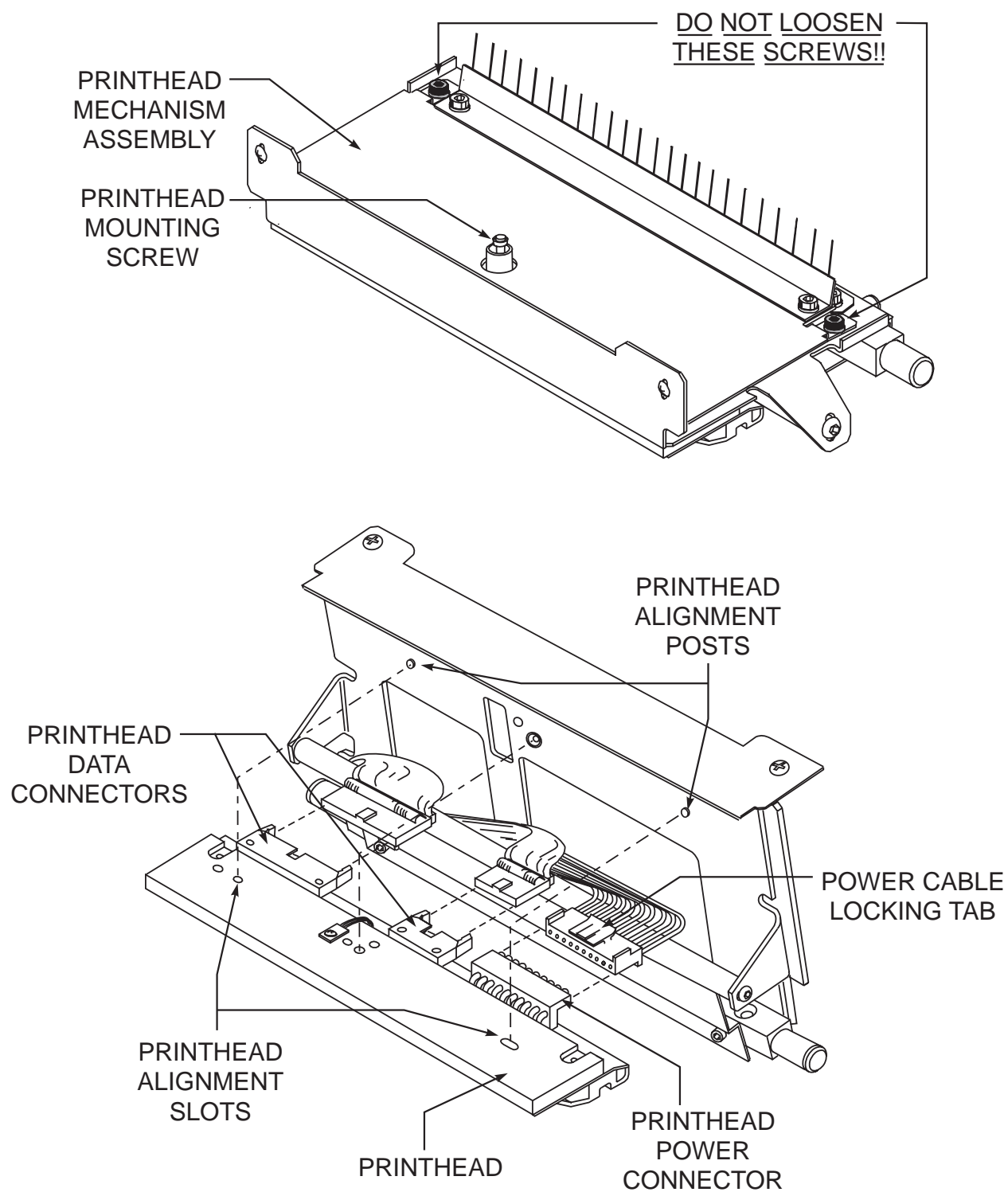
Observe proper Electrostatic Safety Precautions when removing, handling and replacing the Printhead.

1. Turn the printer OFF and remove the Power Cord.
 2. Open the Printhead Assembly and remove the media and ribbon; then close the Printhead Assembly.
 3. Properly connect yourself to an anti-static protection system.
 4. Locate the Spring-loaded Printhead Mounting Screw on top of the Printhead Assembly.
 5. Loosen the Mounting Screw until it disengages from the Printhead.
-

CAUTION

Use care to minimize any physical damage to the Printhead during the remainder of this procedure.

6. Slowly open the Printhead Assembly. The Printhead will be resting on the Platen while the rest of the Assembly pivots back.
7. Spread apart the holding tabs on the sides of the Printhead Data Connectors to release the Data Cables.
8. Grasp the outside edges of the Printhead Power Cable Connector and press down on the Power Cable Locking Tab.
9. While maintaining pressure on the locking tab, disconnect the Printhead Power Cable and remove the Printhead through the front of the printer.
10. **Prior to installing the new printhead, note the resistance value shown on the label located under the new printhead.**
11. Connect the Printhead Power Cable to the appropriate connector.
12. Spread apart the holding tabs on the sides of the two data connectors and press the appropriate Printhead Data Cable into each connector. The Holding Tabs must “snap” into place around the cable connectors. Dress cables completely behind the printhead.
13. Carefully position the alignment slots in the new Printhead over the alignment posts on the underside of the mounting bracket (refer to Figure 5.2).
14. **After ensuring that no cables are between the Printhead and the Printhead Bracket and verifying the Printhead is seated properly, carefully tighten the mounting screw.** (If any problems occur during this installation process, contact our Technical Support group.)
15. Refer to Figure 4.1. Use 70% isopropyl alcohol to thoroughly clean the print element (brown area) of the new Printhead.
16. Reinstall media and ribbon.
17. Connect the AC Power Cord and turn the printer power ON.

**Figure 5.2 160S Printhead Replacement**

18. After completing the Power ON Self Test, refer to the Printhead Resistance value (noted in Step 11 above) and perform the Printhead Voltage Adjustment on pages 5-12 through 5-14.
19. After adjusting the printhead voltage, activate the PAUSE Key Self Test by pressing the PAUSE Key while turning the printer power on. Check print quality.
20. The printer should be ready for operation. If problems arise, refer to *Troubleshooting*.

Printhead Adjustments

Print Quality Adjustments

There are five interrelated adjustments that lead to optimum print quality with increased Printhead life:

- Printhead Parallelism
- Wear Plate (Balance) Position
- Printhead Position
- Printhead Pressure
- Strip Plate Positioning

To achieve optimum print quality, install *full-width* media and ribbon in the printer while making the Printhead Adjustments.

1. Prior to performing Printhead Adjustments, activate the PAUSE Key Self Test by pressing the PAUSE Key while turning the printer power ON.
2. Adjust the Toggle Spring(s) by turning the Knurled Adjusting Nut(s) so that there is approximately 30 mm (1.2 inches) between the bottom of the Knurled Adjusting Nut and the top of the black Toggle Button (refer to Figure 5.3). *Be sure the toggle is centered over the media (105S/105Se). For the 160S, position both toggles so that they are half the distance between the Printhead Attaching Screw and the outside edges of the Printhead.*

NOTES: The order in which the adjustments are performed depends on the print quality of the labels printed during the PAUSE Test (see “Sample Labels” in *Troubleshooting*).

The first two Printhead Adjustments (Parallelism and Wear Plate) must be completed prior to attempting to locate the optimum print position. As with the other adjustments, Parallelism and Wear Plate adjustments are interrelated. Adjusting one may have an effect on the position of the other.

Excessive printhead pressure will lead to increased printhead wear and decreased printhead life.

Increased printhead life is possible by combining minimum toggle pressure and optimum printhead position over the Platen Roller.

Printhead Parallelism Adjustment

This adjustment is performed in conjunction with the Wear Plate Position, Printhead Position, and Printhead Pressure Adjustments.

Adjusting the printhead parallelism squares the printhead in reference to the media.

Refer to Figure 5.3 for location of adjustment screws used in the following procedures.

Printhead Parallelism Test

1. Prior to starting this test, insure the installed media is “squared” with the Tear-Off Bar.
2. When the printer begins printing PAUSE Key Self Test labels, refer to *Getting Ready to Print* and adjust the Darkness for a clear presentation of all lines on the test label.
3. The uppermost line on the test label should be parallel to the top edge of the label within a tolerance of 0.020".
4. If the print lines are not parallel with the top of the label, proceed to the Printhead Parallelism Adjustment. If parallelism is within tolerance, proceed to the Wear Plate Position Adjustment.

Printhead Parallelism Adjustment

1. Using a 7/64" Allen wrench or 7/64" Hex driver, loosen the four Allen screws at the top rear of the Print Mechanism.
2. Adjust the parallel location of the uppermost lines by turning one of the two Parallelism Adjustment Screws located at the back of the Print Mechanism.

NOTE: Make adjustments in small adjustments (a fraction of a turn).

3. To move the printhead forward, turn the adjustment screw clockwise as viewed from the rear of the printer.
4. To move the printhead backward, turn the adjustment screw counterclockwise as viewed from the rear of the printer.
5. Adjust each side as necessary to align the uppermost line of the test label in parallel with the top edge of the label.
6. To check the results of your adjustments, run additional PAUSE Key Self Test labels and check for proper parallelism.
7. Tighten the four top Allen screws and run more PAUSE Key Self Test labels to verify proper positioning.

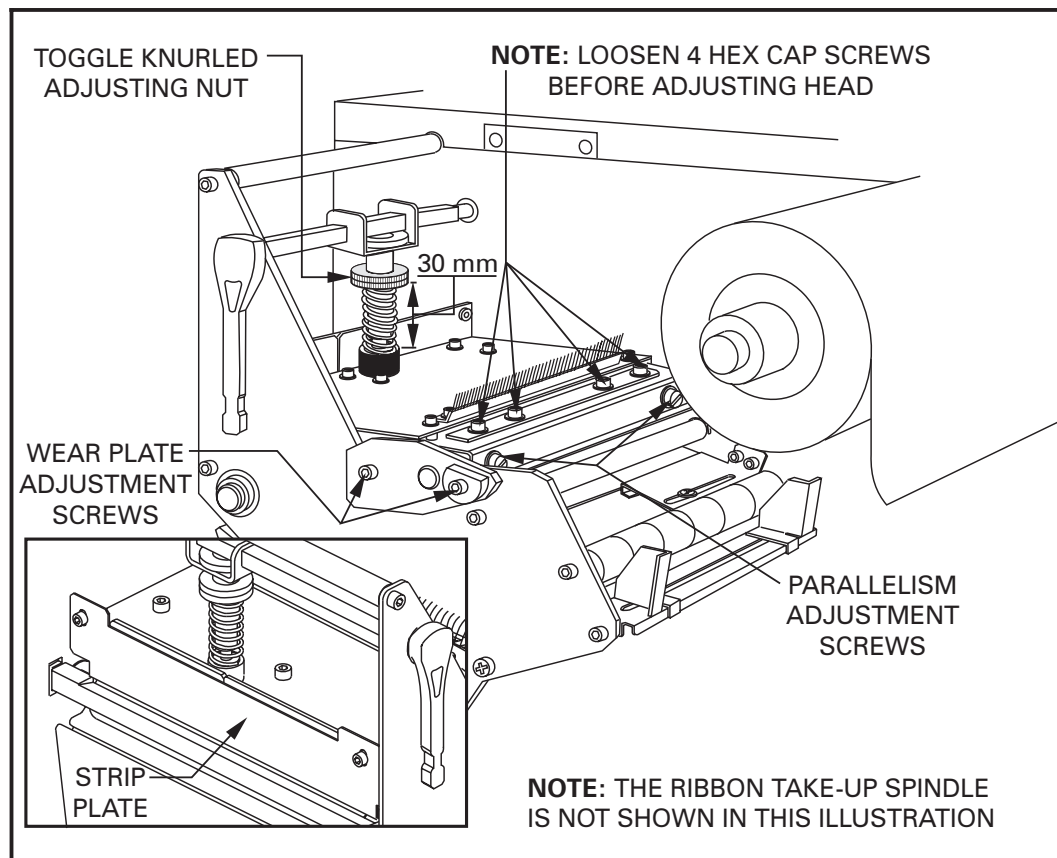


Figure 5.3 Printhead Adjustment Illustration

Wear Plate Position Adjustment

This adjustment is performed in conjunction with the Printhead Parallelism, Printhead Position, and Printhead Pressure Adjustments.

Adjusting the Wear Plate position produces even pressure across the full width of the Printhead and platen roller.

Refer to Figure 5.3 for the location of the adjustment screws used in the following procedure.

1. Position both Toggles (160S) so that they are half the distance between the Printhead Attaching Screw and the outside edges of the Printhead. For the 105S/105Se, make sure the Toggle is centered over the media.
2. Adjust the Toggle Spring(s) by turning the Knurled Adjusting Nut(s) so that there is approximately 30 mm (1.2 inches) between the bottom of the Knurled Adjusting Nut and the top of the black Toggle Button.
3. Using a 3/32" Allen wrench or Phillips head screwdriver, loosen the two screws on the front of the Strip Plate.
4. Activate the PAUSE Key Self Test by pressing the PAUSE Key while turning the printer power ON.
5. As labels are printed, reduce the DARKNESS value until the test labels are a charcoal gray color.
6. Print additional PAUSE Key Self Test labels and observe the print quality.

7. If lighter or no printing is observed on one side of the label as compared with the other, continue with this adjustment.
8. Using a 7/64" Allen wrench, slightly loosen the two Allen set screws mounted on the Wear Plate.
9. Continue to print PAUSE Test labels while adjusting the Wear Plate Eccentric for even printing.
10. Adjust the Wear Plate Eccentric by turning it by hand, or with a 7/16" open end wrench, or with a pair of utility pliers.
11. Adjust the Wear Plate Eccentric until uniform print density is achieved across the label.
12. When even print quality is achieved, hold the Wear Plate in position and tighten the two Wear Plate Set Screws.
13. Continue to print PAUSE Test labels and verify that parallelism is correct.
14. If parallelism is out of tolerance, perform the Printhead Parallelism Adjustment.
15. If no other adjustment is required, follow the Strip Plate Adjustment Procedure found later in this section, and tighten the two Allen screws.

Printhead Position Adjustment

This adjustment is performed in conjunction with the Printhead Parallelism, Wear Plate Position, and Printhead Pressure Adjustments.

Adjusting the Printhead position aligns the head for optimum print quality.

Refer to Figure 5.3 for location of adjustment screws used in the following procedure.

1. The thermal elements of the printhead should be aligned just behind the crest of the Platen Roller.
2. Print test labels using the PAUSE Key Self Test.
3. Using a 7/64" Allen wrench, loosen the four Allen screws at the top rear of the Print Mechanism.
4. Position both Toggles (160S) so that they are half the distance between the Printhead Attaching Screw and the outside edges of the Printhead. For the 105S/105Se, make sure the Toggle is centered over the media.
5. Set the Darkness to achieve the optimum print quality.

CAUTION

In step 6, to prevent printhead damage, loosen the four top screws before turning the two rear adjustment screws.

6. Adjust the printhead position for optimum print quality by equally turning the two Parallelism Adjustment Screws located at the back of the print mechanism.

7. **Adjustments are made in very small increments.**

Turn both Parallelism Adjustment Screws one eighth turn clockwise and observe the changes in print quality. (Due to spring pressure, there may be a dead spot in the actual printhead movement when switching adjustments from one direction to the other.)

8. Decrease the Burn Temperature until the PAUSE Test labels are a charcoal gray color.
9. Carefully look at the PAUSE Test labels for streaks, flouring, and other print quality problems.
10. If required, adjust the hex head screws and observe if print quality problems are corrected.
11. Increase Burn Temperature until the PAUSE Test labels are printed at optimum resolution and contrast.
12. Since Printhead parallelism, Wear Plate position, and Printhead position are interrelated, carefully look at the test labels for changes in these settings and adjust if necessary.

Printhead Pressure Adjustment

Printhead Pressure is the fourth of the four interrelated adjustments. Using lower Printhead Pressure and Darkness settings can extend printhead life. If printing is too light on one side or if a thick media is used, printhead pressure may require adjustment.

Refer to Figure 5.4 for the location of the Pressure Toggle for the 105S and 105Se printers. This toggle should be positioned over the center of the media width. The 160S printer has two toggles. These toggles are typically positioned at the 1/4 and 3/4 positions across the width of the media. If narrow media is used on the 160S, the inside toggle should be centered above the media and the pressure of the outside toggle should be reduced to zero.

1. Print PAUSE Key Self Test labels to check print quality.
2. To increase printhead pressure, loosen the Upper Knurled Nut on the Toggle and adjust the Lower Toggle Adjusting Nut downwards.
3. To decrease printhead pressure, loosen the Upper Knurled Nut and adjust the Lower Toggle Adjusting Nut upwards.
4. Adjust printhead pressure for optimum print quality.
5. To lock-in printhead pressure, tighten the Upper Knurled Nut against the Lower Toggle Adjusting Nut.
6. Though different media and ribbon combinations may require different Toggle settings, a suggested initial distance between the bottom of the Lower Toggle Adjusting Nut and the top of the black Toggle Button is approximately 30 mm.
7. Adjust Burn Temperature to the optimum level for the installed media.

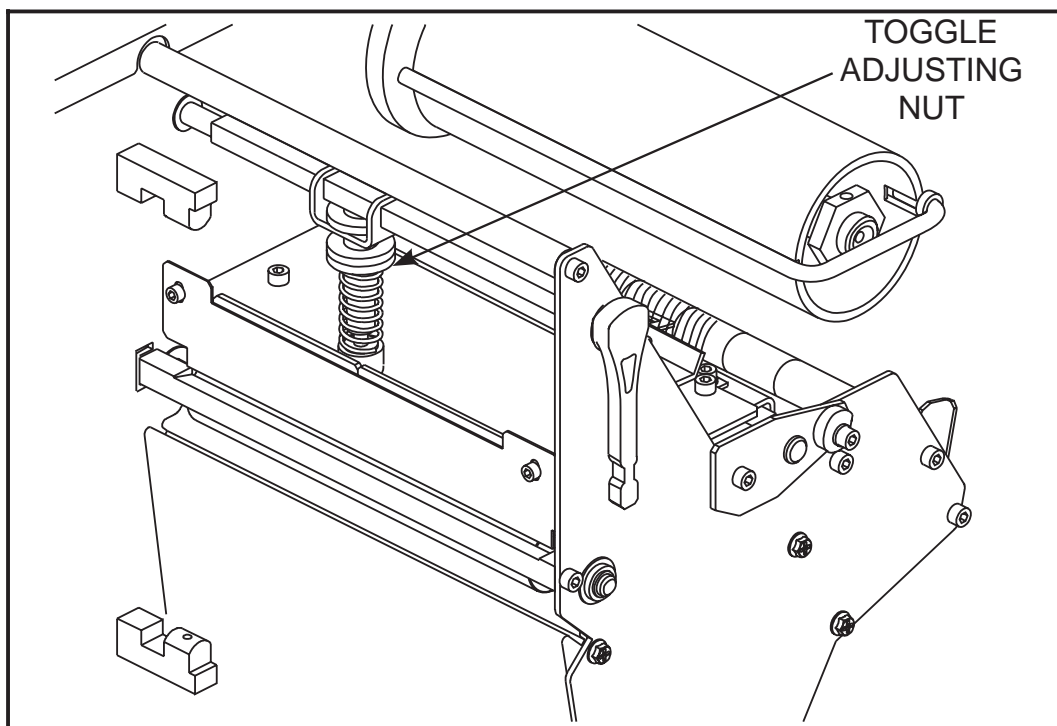


Figure 5.4 Printhead Pressure Adjustment

Strip Plate Adjustment

The Strip Plate is a very important part of the printhead adjustment procedure.

The Strip Plate can be adjusted for proper tracking and separation of the ribbon from the media after printing.

1. Print PAUSE Key Self Test labels.
2. Press the PAUSE Key and, after the printer pauses, observe the ribbon for possible problems (wrinkling, etc.).
3. Refer to Figure 5.3, and loosen the two Allen screws holding the Strip Plate to the front of the Printhead Assembly.
4. While running the PAUSE Key Self Test, lower the Strip Plate so the ribbon is flat and smooth and tracks properly to the Ribbon Take-up Spindle.
5. Tighten the Strip Plate Allen screws and print a minimum of twenty-five labels. Check for ribbon wrinkle, tracking, and noise problems. If ribbon wrinkle and/or tracking problems persist, check the torque settings of the Ribbon Supply Spindle and adjust tension if required.

Printhead Voltage Adjustment

When a printhead or the printer's power supply is replaced, the printhead Voltage must be adjusted for the proper value. This adjustment establishes the voltage applied to the print elements during the printing process. When adjustment is necessary, follow this procedure:

CAUTION

This voltage adjustment is critical to the life of the printhead. **DO NOT** use this adjustment in an attempt to increase the printing darkness or burn temperature.

Adjustment Procedure

Calculate the proper Printhead Voltage using the appropriate formula below. The formula to use depends on the type of Printhead used in the printer. In the formula, R is the Print Element average resistance value as indicated on a label on the Printhead. The label can be seen by releasing the Printhead latch, moving the ribbon (if any) to the side and looking up at the underside of the Printhead.

(The charts in this section may be used instead of the formulas.)

6 dot/mm formula: $V = \sqrt{0.978 \times R} + 0.48$

8 dot/mm formula: $V = \sqrt{0.64 \times R} + 0.479$

12 dot/mm formula: $V = \sqrt{0.4127 \times R} + 0.58$

1. Remove the four mounting screws and the Left Side Panel to provide access to the Main Logic Board.
2. Locate the Head Voltage Adjustment Potentiometer (RV2) below the transformer and filter capacitors on the Power Supply Board.
3. **(105S and 105Se Only) On the Main Logic Board**, attach a voltmeter between test point TP8 and Ground. TP8 is located to the left of the DC Power Cable Connector J9.
(160S Only) On the Power Supply Board, attach a voltmeter between the left end of Diode Z3 and ground. Diode Z3 is located just to the right of potentiometer RV2.
4. Turn the printer ON.
5. Adjust RV2 so the voltmeter reading matches the value determined at the beginning of this procedure.
6. Turn the printer OFF, disconnect the voltmeter leads, and replace the printer's Left Side Panel.

6 Dot/mm Printhead Voltage Table					
Ω	Volts	Ω	Volts	Ω	Volts
315	18	355	19.1	395	20.1
320	18.2	360	19.2	400	20.3
325	18.3	365	19.4	405	20.4
330	18.4	370	19.5	410	20.5
335	18.6	375	19.6	415	20.6
340	18.7	380	19.8	420	20.7
345	18.8	385	19.9	425	20.9
350	19	390	20		

8 Dot/mm Printhead Voltage Table								
Ω	105S	105Se/ 160S	Ω	105S	105Se/ 160S	Ω	105S	105Se/ 160S
	Volts	Volts		Volts	Volts		Volts	Volts
535	19.0	18.95	600	20.1	20.04	665	21.1	21.07
540	19.1	19.04	605	20.2	20.12	670	21.2	21.14
545	19.2	19.12	610	20.2	20.20	675	21.3	21.22
550	19.2	19.21	615	20.3	20.28	680	21.3	21.30
555	19.3	19.29	620	20.4	20.36	685	21.4	21.37
560	19.4	19.38	625	20.5	20.44	690	21.5	21.45
565	19.5	19.46	630	20.6	20.52	695	21.6	21.52
570	19.6	19.54	635	20.6	20.60	700	21.6	21.60
575	19.7	19.63	640	20.7	20.68	705	21.7	21.67
580	19.7	19.71	645	20.8	20.76	710	21.8	21.75
585	19.8	19.79	650	20.9	20.83	715	21.9	21.82
590	19.9	19.88	655	21.0	20.91	720	21.9	21.90

12 Dot/mm Printhead Voltage Table					
Ω	Volts	Ω	Volts	Ω	Volts
810	18.86	910	19.96	1010	21.00
815	18.92	915	20.01	1015	21.05
820	18.98	920	20.07	1020	21.10
825	19.03	925	20.12	1025	21.15
830	19.09	930	20.17	1030	21.20
835	19.14	935	20.22	1035	21.25
840	19.20	940	20.28	1040	21.30
845	19.25	945	20.33	1045	21.35
850	19.31	950	20.38	1050	21.40
855	19.36	955	20.43	1055	21.45
860	19.42	960	20.48	1060	21.50
865	19.47	965	20.54	1065	21.54
870	19.53	970	20.59	1070	21.59
875	19.58	975	20.64	1075	21.64
880	19.64	980	20.69	1080	21.69
885	19.69	985	20.74	1085	21.74
890	19.75	990	20.79	1090	21.79
895	19.80	995	20.84	1095	21.84
900	19.85	1000	20.90	1100	21.89
905	19.91	1005	20.95		

Media Sensor Position Adjustment

Transmissive Media Sensor

The Transmissive Media Sensor contains an upper section and a lower section. The upper section senses the infrared light emitted by the components mounted on the lower section. The amount of light passing between these two sections determines when either the “web” between labels or a hole or notch in the media is present. This sensing also determines the length of the label or ticket for non-continuous media.

The factory-set position should be sufficient for any width label, so little or no repositioning should be required when using media with a web. If it does become necessary to reposition the Transmissive Media Sensor, perform the Upper Section Adjustment first followed by the Lower Section Adjustment.

Upper Section Adjustment

To adjust the upper section of the Transmissive Media Sensor for the inside half of the media width, refer to Figures 5.5 and 5.6 and follow these steps:

1. Remove the ribbon and locate the upper section of the Media Sensor.
2. Loosen the mounting screw holding this section in position.
3. Slide the upper section along the slot to any position along the web, except where the rounded corners of the label are detected. (When using tag stock, position the upper section directly over the hole or notch.)
4. Tighten the mounting screw.

(160S ONLY) To adjust the upper section of the Transmissive Media Sensor for the outside half of the media width, refer to Figure 5.6 and the illustration on page 7-13 and follow these steps:

1. Remove the ribbon and locate the upper section of the Media Sensor.
2. Remove the printer's left side panel and reroute the media sensor cable to provide additional slack.
3. Remove the mounting screw to release the upper section of the sensor and the wire cover.
4. Carefully pull the wires through the tie wrap as you reposition the sensor and the wire cover to the outside half of the mounting bracket.
5. Replace and tighten the mounting screw; then replace the printer's left side panel.

Lower Section Adjustment

To adjust the lower section of the Transmissive Media Sensor, refer to Figure 5.7 and follow these steps:

1. Locate the lower section of the Transmissive Media Sensor (a spring clip holding a printed circuit board) under the Rear Idler Roller.
2. Slide the lower section of the sensor across its mounting rail until the two brass colored infrared emitters are centered under the upper section.
3. Gently pull wires out from the frame as required. (Wires should have a little slack.)

NOTE: If the lower section is being moved inward and a large loop of wire results, remove the printer's left side panel and gently pull the wires through. It is important that the wires be positioned away from the drive belts and pulleys.

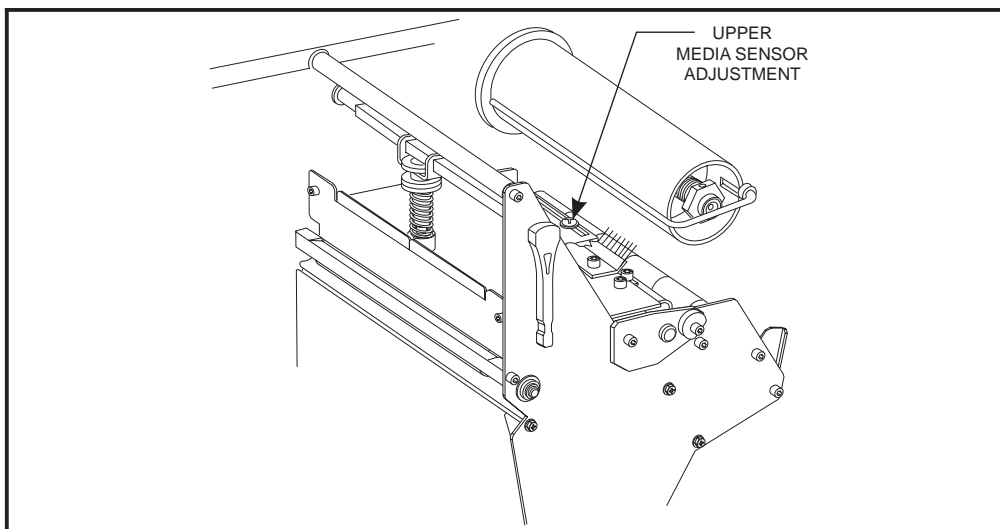


Figure 5.5 105S and 105Se Transmissive Sensor (Upper)

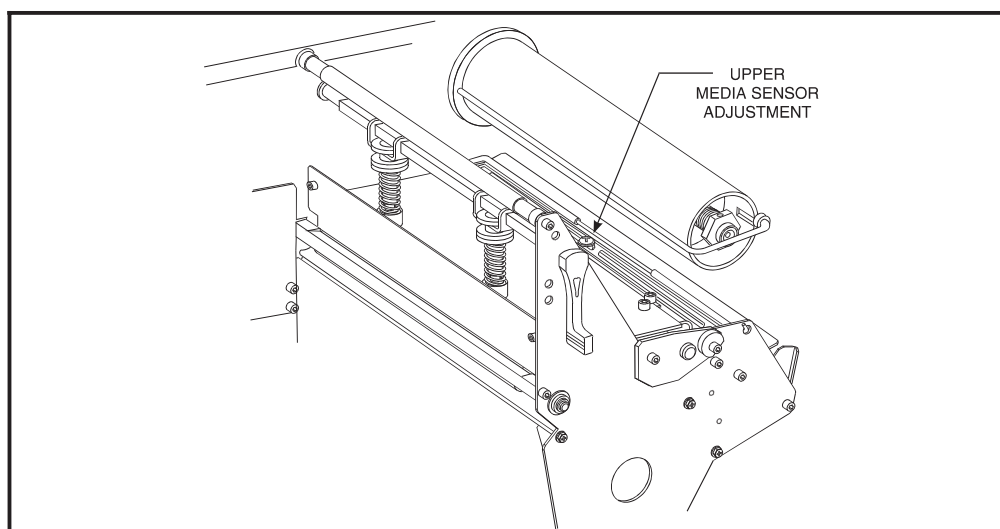


Figure 5.6 160S Transmissive Sensor (Upper)

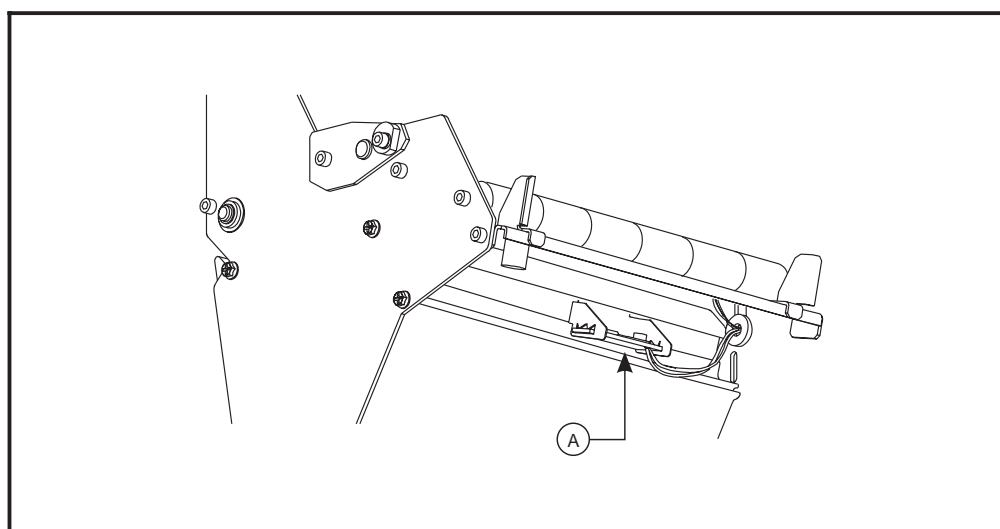


Figure 5.7 Transmissive Sensor Lower Section

Reflective Media Sensor Adjustment

The Reflective Media Sensor is placed into operation for those applications where the sensing of Black Marks on the underside of the media is desired.

For the 105S printer, the Reflective Media Sensor is an option that is installed in place of the lower section of the Transmissive Media Sensor. Position adjustment is available across the total width of the media. With the Reflective Media Sensor installed, the upper section of the Transmissive Media Sensor is not operational.

For the 160S and 105Se printers, the position of the Reflective Media Sensor is fixed against the Mainframe and has no adjustment. Switches on the rear of the printers are used to configure the printers for operation with either the Reflective Media Sensor or the Transmissive Media Sensor previously discussed.

Transmissive Media Sensor and Ribbon Sensor Sensitivity Adjustment

NOTE: This adjustment is initially performed by Zebra Technologies during final printer inspection. Under normal circumstances, further adjustments should not be necessary. The exception is when media with exceptionally thick or thin backing material is being used in the printer.

Perform the following procedure if the Paper/Ribbon LED comes ON when:

- a. In the thermal transfer printing mode, media and ribbon are properly installed
- or*
- b. In the direct thermal printing mode, media only is properly installed.

Sensitivity Adjustment Procedure

1. Turn the printer OFF.
2. Raise the Media Cover and open the Printhead.
3. Load at least 12 inches of blank backing material (no labels) under the Printhead.

NOTE: Insure that blank backing material extends behind the Printhead and is positioned between the upper and lower sections of the Transmissive Media Sensor.

4. Remove the ribbon. (Sliding the ribbon as far to the right as possible will have the same effect as removing it.)
5. Close the Printhead.
6. Press the Pause, Feed, and Cancel keys while turning the printer ON. Once the printer is ON, release all three keys.

The following two sets of LEDs will begin flickering to signify that the automatic sensor adjustment has been made.

The PRINthead and PAPER/RIBBON LEDs.
The DARKEN and POSITION LEDs.

NOTE: If only one pair of LEDs is flickering, it indicates that the adjustment was not successful. Go back to step 1 and start over.

7. Open the Printhead and pull the media through the printer until a label is positioned between the upper and lower sections of the Transmissive Media Sensor. Move the ribbon back to its normal position.
8. Close the Printhead and press the MODE key to complete the automatic adjustment process. A Media Sensor Profile will automatically print and the new sensor settings will be automatically saved. (See Figure 5.8)
9. Perform the Media Calibration procedure located in *Getting Ready to Print*.

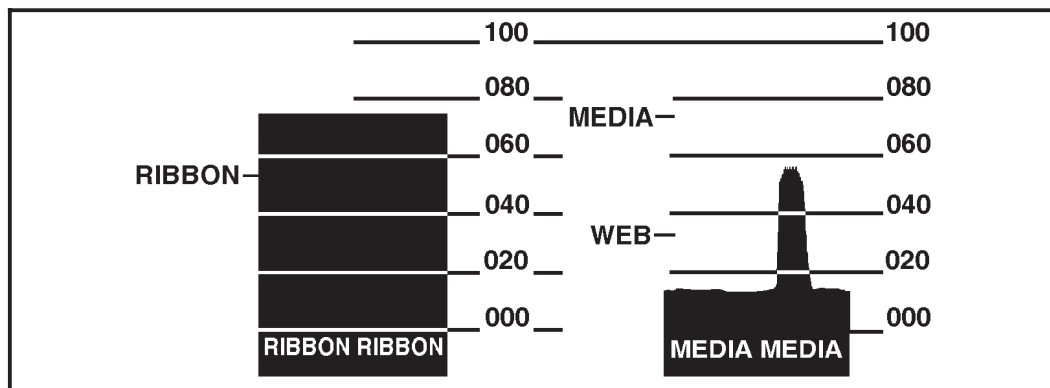


Figure 5.8 Media Sensor Profile Sample Label

Take Label Sensor Alignment

The Take Label Sensor pair is active only when the S-Series printer is set to Peel-Off mode. To operate in this mode either the Rewind Option or the Backing Only Rewind Option must be installed. The Take Label Sensor pair is not included on S-Series printers unless one of these options is installed.

Refer to Figure 5.9 for the location of the Take-Label Sensor pair. When a label printed in Peel-Off mode breaks the infrared light beam passing between the sensors, further printing and feeding is inhibited. Additional label formats will be accepted by the printer if the data buffer is not full. When the operator removes the label from the sensor path, the next label will print. There is no sensitivity adjustment for this sensor. If you encounter problems, make certain the printer is set to Peel-Off mode and that the sensor pair are aligned. Sensors are aligned when installed. No adjustments are required after installation.

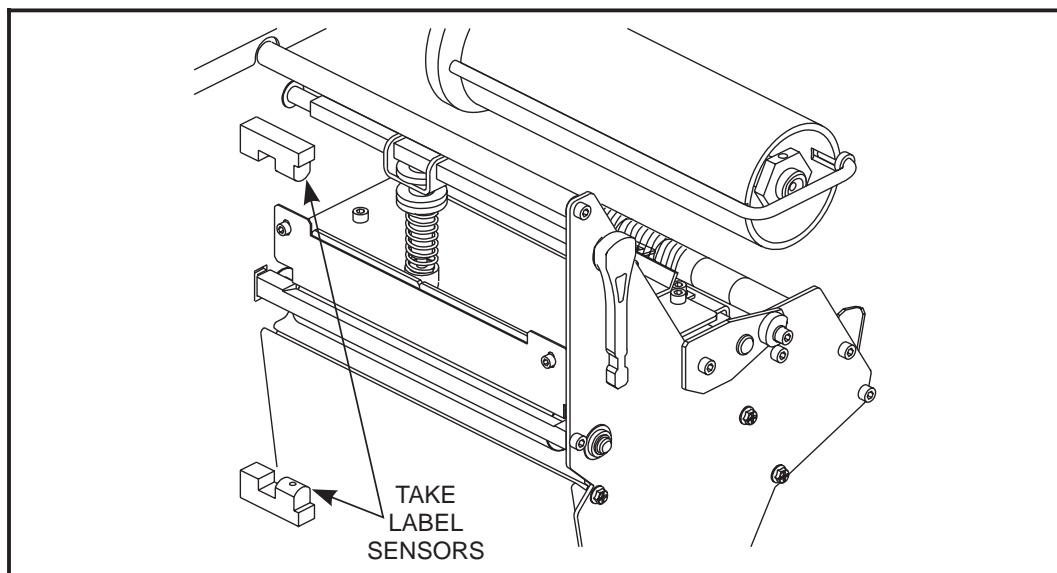


Figure 5.9 Take Label Sensor Location

Media Tracking Adjustments

Rewind Mode

If the media walks from side to side, or if it tears or wrinkles against the Media Rewind Tracking Plate, it will be necessary to adjust the Rewind Plate Assembly. Refer to Figures 5.10 and 5.11.

1. Remove the Rewind Plate Assembly and loosen the 5/16" Hex nuts attaching the Hook Plate to the Rewind Plate. Moving the outer end of the Hook Plate up will force the media towards the Rewind Tracking Plate while moving this end down will move the media away from the Tracking Plate. (The opposite effect will occur if the same adjustments are performed on the inner end of the Hook Plate.)
2. Tighten the Hex nuts, reinstall the Rewind Plate Assembly, and print several test labels. If problems persist, readjust the Hook Plate.
3. **(105S and 105Se Only)** If the media cannot be made to track correctly with the previous adjustment, check the distance from the outside of the Tracking Plate to the Main Frame. This dimension is set at the factory and should be 0.530" (13.5 mm) to 0.570" (14.5 mm). If the distance needs to be reset, refer to Figure 5.11 and proceed to step 4 below.
4. **(105S and 105Se Only)** Use a 1/16" Hex Allen Wrench to loosen the two set screws in the Collar (located inside the Rewind Spindle Assembly). The screws are accessible through a single hole in the Spindle Assembly, as shown in Figure 5.11. Reposition the Spindle Assembly closer to or farther from the Main Frame as required, and retighten the two set screws in the collar.
5. Repeat steps 1 and 2 until the required results are achieved.

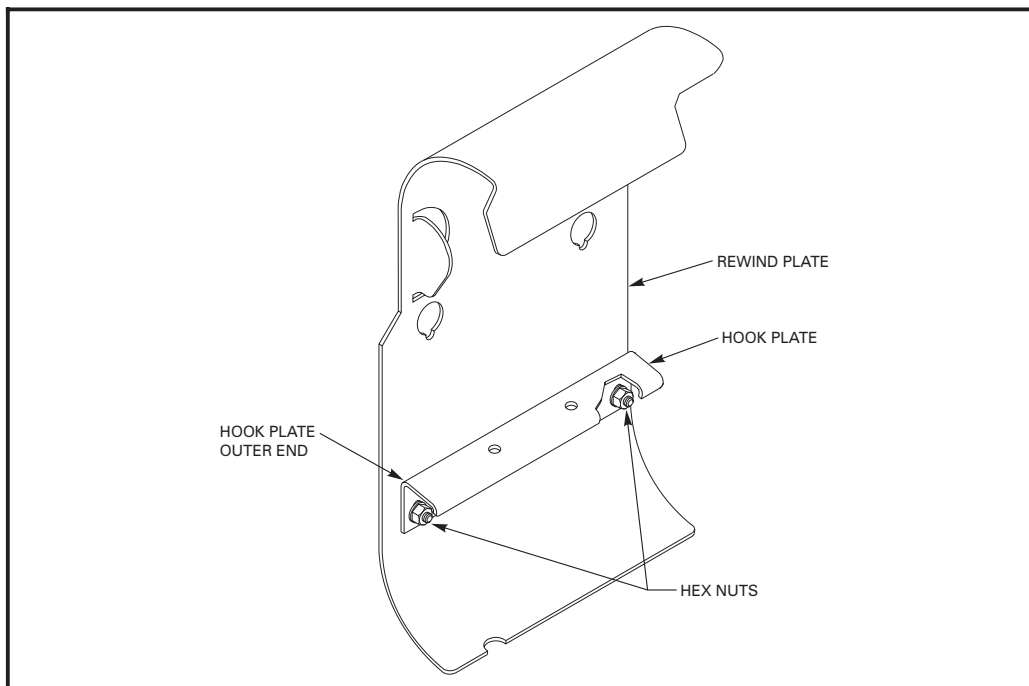


Figure 5.10 Rewind Plate Assembly

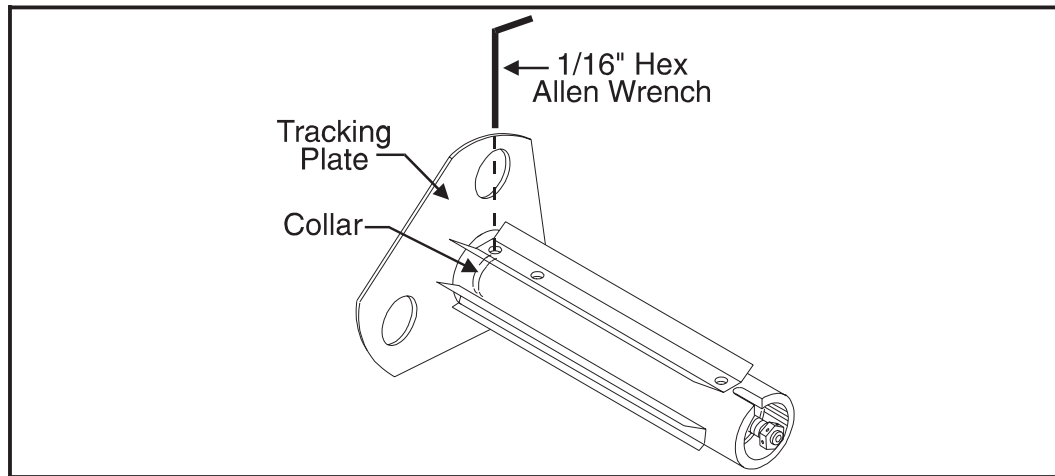


Figure 5.11 105S/105Se Rewind Spindle Positioning

Peel-Off Mode

In “Peel-Off Mode”, the Lower Roller alignment has the same effect on media tracking as the Rewind Plate alignment does in “Rewind Mode”. Refer to Figure 5.12 and perform the following procedure.

1. Use a 7/64” Hex Allen wrench to loosen the (2) Allen screws that attach the Platen Support Bracket to the Side Plate.
2. Moving the bracket toward the front of the machine moves the label backing material away from the Rewind Tracking Plate. Moving the bracket toward the rear of the machine moves the label backing toward the tracking plate. Adjust the bracket position as required and tighten the Allen screws.
3. Print several labels and repeat steps 1 and 2 until proper tracking is achieved.

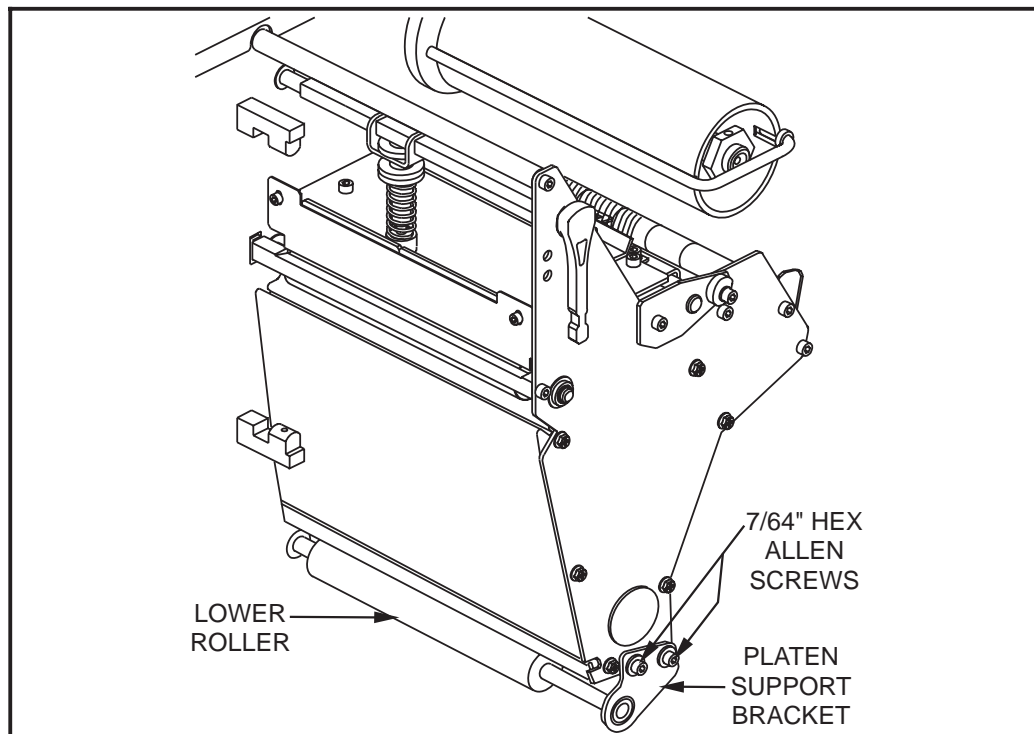


Figure 5.12 Peel-Off Lower Roller Alignment

Spindle Adjustment and Maintenance

There are three spindles which require periodic tension measurement and adjustment. Measuring spindle tension should be done at least once each year unless required more often due to high printer use. Tension should be adjusted whenever it is not within the tolerance range associated with that spindle.

Tension Measurement Procedure

The procedure for measuring spindle tension is similar for all three spindles. Refer to the Spindle Tension Adjustment Diagram in Figure 5.13 for specific requirements.

1. Use adhesive tape to attach a 2" wide strip of polyester film (Part # 01776) to the Spindle Shaft (or Core where required) as illustrated in Figure 5.13. Wind the polyester film around the Spindle (or Core) about 5 times in the direction indicated.
2. Slowly and evenly (2" per second) pull the strip of polyester film using the Spring Scale. (The rotation of the spindle should be smooth and should not cause the reading on the Spring Scale to "jump" excessively.)
3. Compare the Spring Scale reading with the load values provided in Figure 5.13. Perform the Spindle Tension Adjustment only if the reading is out of spec.
4. If adjustment is made, recheck the tension after running one full roll of labels.

Spindle Tension Adjustment

Refer to the Spindle Tension Adjustment Diagram in Figure 5.13 and adjust the Spindle Tension as follows:

1. Loosen the set screw(s) in the large Adjustment Nut at the end of the spindle (End Cap of the Ribbon Supply Spindle).
2. Turn the Adjustment Nut inward to increase the tension or outward to decrease the tension; then tighten the set screws.

If the Spindle Shaft turns when attempting to tighten or loosen the Adjustment Nut, refer to Figure 5.11 and insert a 1/16" Allen wrench through the access hole and into the set screw in the shaft collar (**105S/105Se ONLY**) or into one of the slots in the plastic clutch (**160S ONLY**). Hold the shaft in place with the Allen wrench while turning the Hex nut.

3. Use adhesive tape to attach a 2" wide strip of polyester film (Part # 01776) to the Spindle Shaft (or Core where required) as illustrated in Figure 5.13. Wind the polyester film around the Spindle (or Core) about 5 times in the direction indicated.
4. Slowly and evenly (2" per second) pull the strip of polyester film using the Spring Scale. (The rotation of the spindle should be smooth and should not cause the reading on the Spring Scale to "jump" excessively.)
5. Compare the tension reading on the Spring Scale with the appropriate load values provided in Figure 5.13. Repeat steps 1 through 4 until the correct tension is obtained.

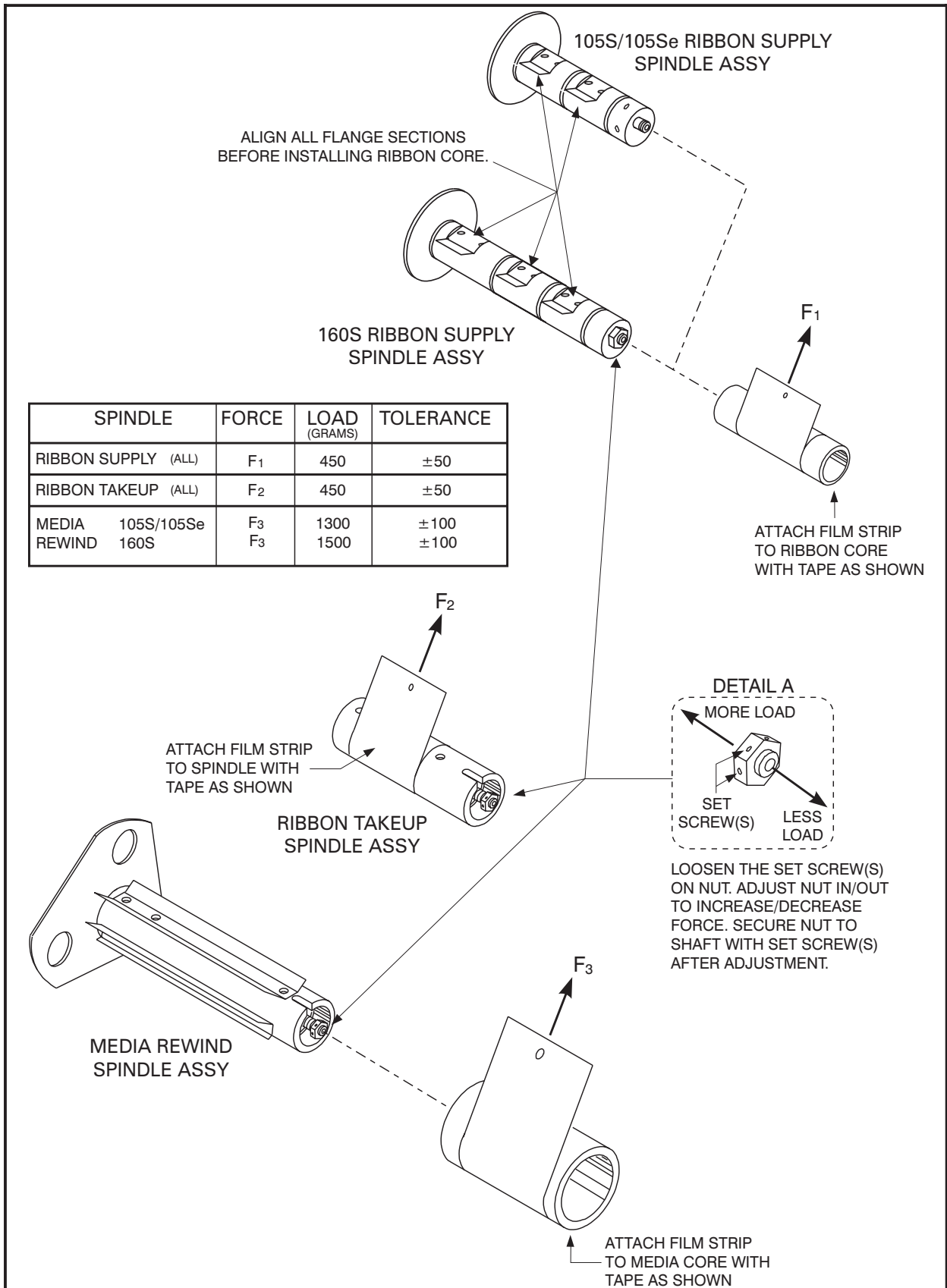


Figure 5.13 Spindle Tension Adjustments

Removing the Adapter Board (105S-300 dpi and all 105Se)

The Adapter Board may require removal when replacement is necessary. Follow the procedure below, and refer to Figure 5.14 to remove the Adapter Board.

CAUTION

Eliminate any static electricity by using an anti-static wrist strap attached to the printer chassis. The printer electronics are susceptible to static discharge.

Be sure the printer is OFF and the AC Power Cord and Signal Interface Cable are disconnected.

CAUTION

Failure to disconnect power to the printer is a safety hazard and could result in damage to the Printhead.

1. Remove the Left Side Panel of the printer by removing the Phillips screws that hold it on.
2. Disconnect the Power Supply Cable and the Printhead Cable from the Adapter Board.
3. Using a 7/64" Allen Wrench, remove the screw holding the Adapter Board to the standoff that is mounted on the printer frame.
4. Using a gentle rocking motion, remove the Adapter Board from the socket on the Main Logic Board.

Installing the Adapter Board (105S-300 dpi and all 105Se)

1. Insert the Adapter Board into the socket on the Main Logic Board.
2. Using a 7/64" Allen wrench, attach the Adapter Board to the standoff with the mounting screw; tighten the screw.
3. Attach the Power Supply Cable and the Printhead Cable. (The Printhead Cable should be routed behind the drive belts and secured to the printer frame with the clips mounted to the frame.)
4. Reattach the Left Side Panel to the printer.
5. Connect the AC Power Cord and Signal Interface Cable.

Removing the Main Logic and Power Supply Boards

The Main Logic Board or Power Supply Board may require removal when replacement is necessary. The following procedure explains how to remove these circuit boards.

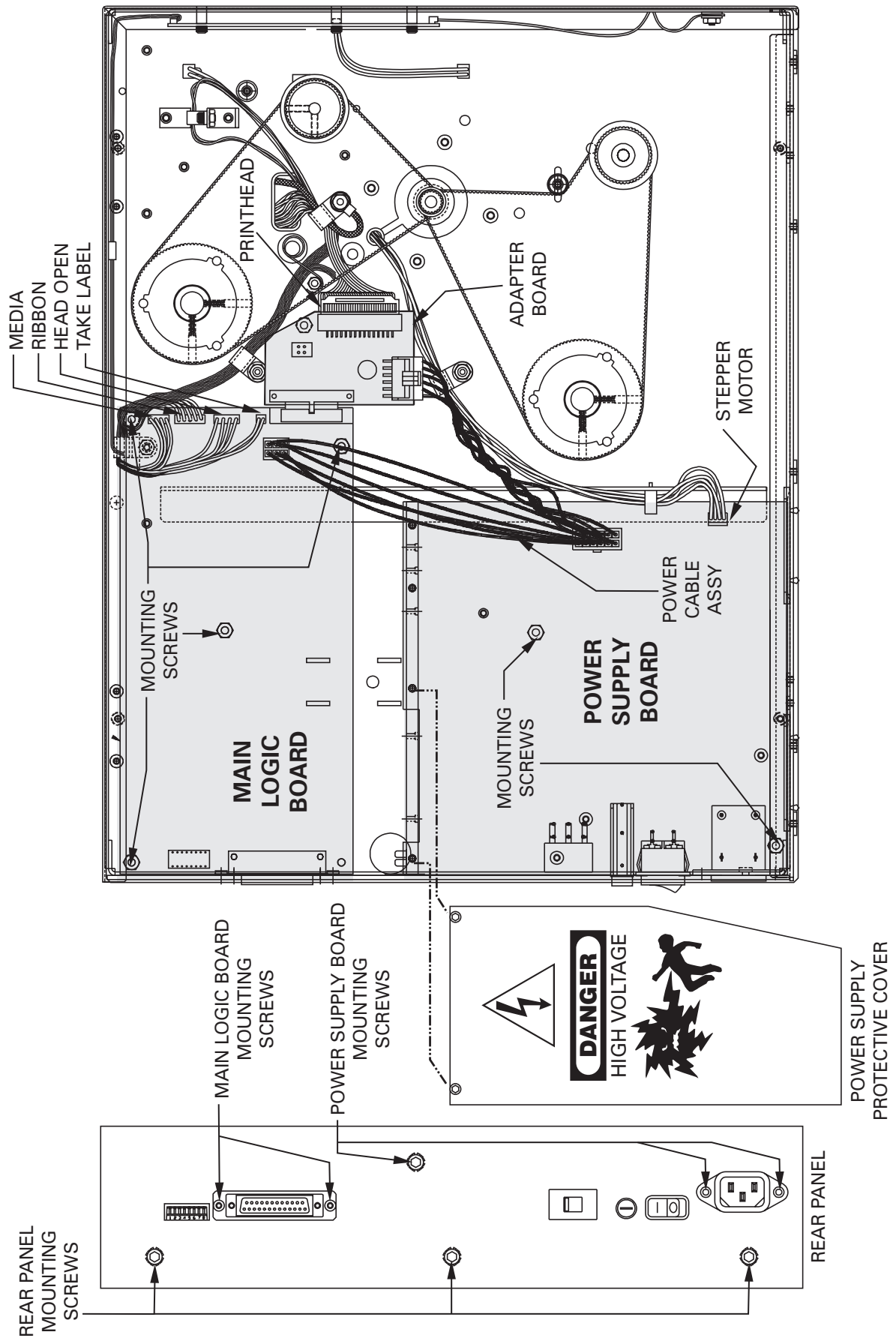


Figure 5.14 105S 12-Dot/105Se Electronics

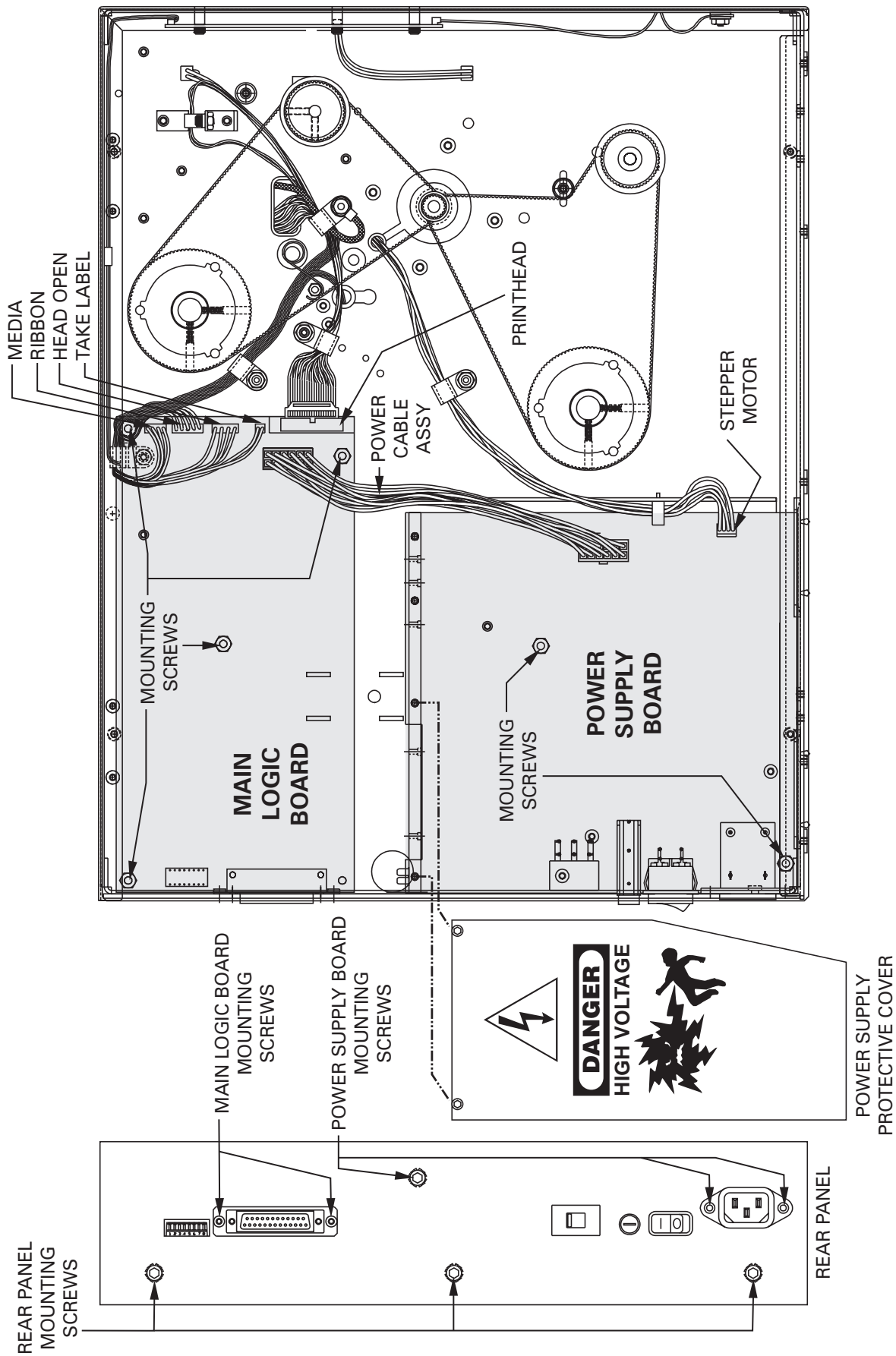


Figure 5.15 105S 6- and 8-Dot Electronics

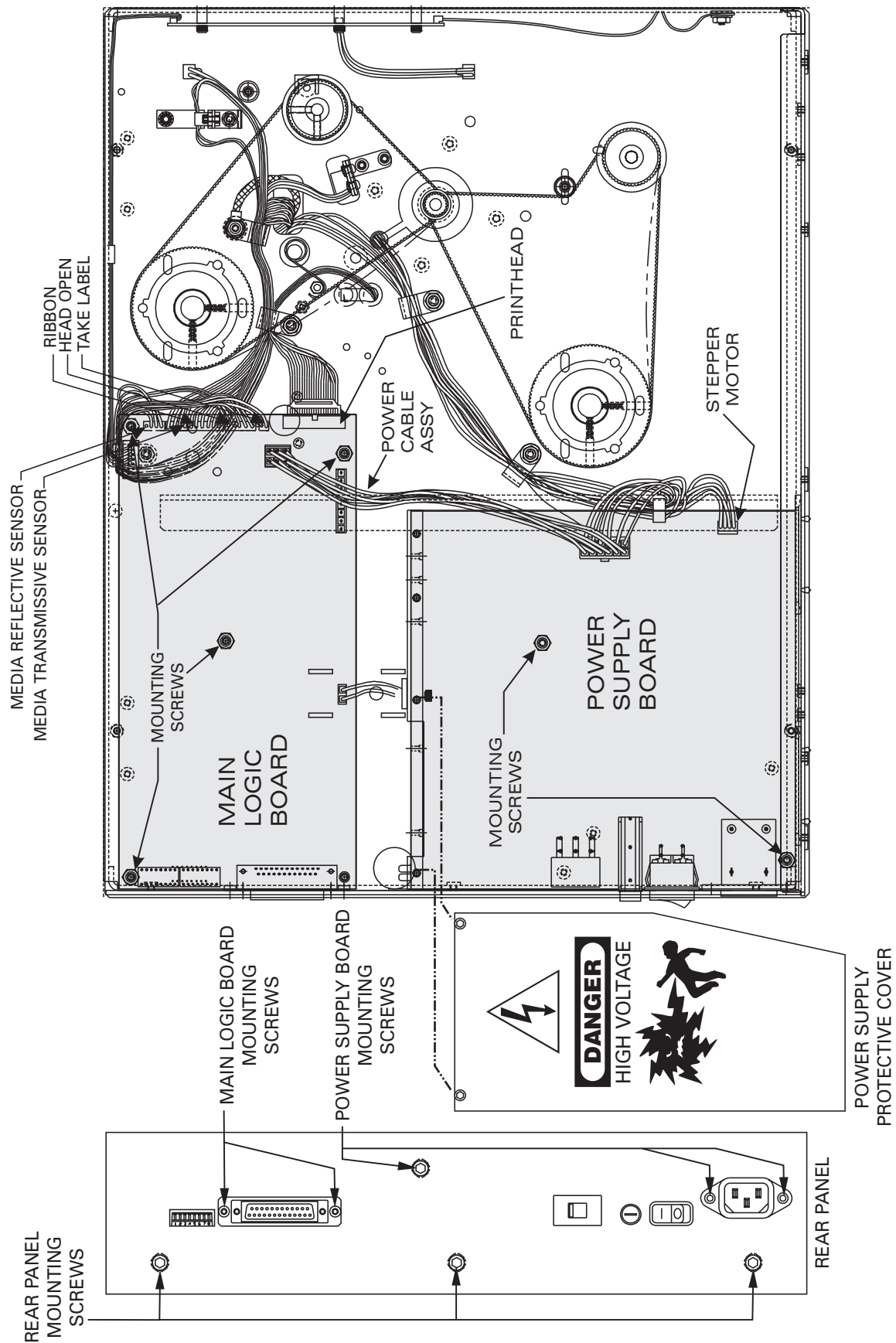


Figure 5.16 160S Electronics

CAUTION

Eliminate any static electricity by using an anti-static wrist strap attached to the printer chassis. The printer electronics are susceptible to static discharge.

1. Be sure printer is OFF and the AC Power Cord and Signal Interface Cable are disconnected.
2. Remove the Left Side Panel of the printer by removing the Phillips screws which hold it on.
3. Refer to Figures 5.14, 5.15 and 5.16. Unplug all Ribbon Cable Connectors, Small Wire Connectors, and the Adaptor Board (if equipped) from the Main Logic Board and the Power Supply Board.
4. Remove the two screws holding the cardboard cover over the high-voltage section of the Power Supply, and remove the cover.
5. Remove the Mounting Screws that hold the Rear Panel to the Printer Frame.
6. Remove the four (105S/105Se) or five (160S) mounting screws holding the Main Logic Board and the two mounting screws holding the Power Supply against the Printer Frame Standoffs.
7. Carefully slide the Rear Panel and Circuit Board Assembly from the rear of the printer.
8. To complete the circuit board removal process, either remove the two mounting screws holding the Main Logic Board to the Rear Panel or remove the three mounting screws holding the Power Supply Board to the Rear Panel.

Installing the Main Logic and Power Supply Boards

If the Adaptor Board is installed in the printer, it is recommended that you remove it *before* you perform this procedure (refer to page 5-24).

1. Attach the Main Logic Board and/or the Power Supply Board to the Rear Panel with the appropriate mounting screws. (Do not tighten these screws.)
2. Slide the Rear Panel and Circuit Board Assembly into the printer from the rear.
3. Attach the Rear Panel to the Printer Frame with the mounting screws. (Make sure the screws are snug.)
4. Attach the Main Logic Board and the Power Supply Board to the Printer Frame Standoffs with the appropriate mounting screws. (Do not tighten these screws.)
5. Tighten the circuit board mounting screws on the Rear Panel, then tighten the mounting screws into the standoffs.
6. Reinstall the Adaptor Board (if equipped). Refer to page 5-24.
7. Attach all cables to the Main Logic Board and the Power Supply Board.
8. Replace the Power Supply Protective Cover.

Dangerous voltage is present at the Power Supply Board when the printer is ON. Keep clear of the Power Supply Board when turning the printer ON.

WARNING

When the printer power is turned ON in step 7, dangerous voltage is present at the Power Supply Board.

6. Reconnect the AC Power Cord.
7. Press and hold the CANCEL Key while turning the printer AC Power Switch ON. A Configuration Label will print.
8. Verify the “Firmware” version shown on the Configuration Label is the same as the software just installed.
9. Complete the process by installing the Left Side Panel on the printer.
10. The printer is now ready to operate.

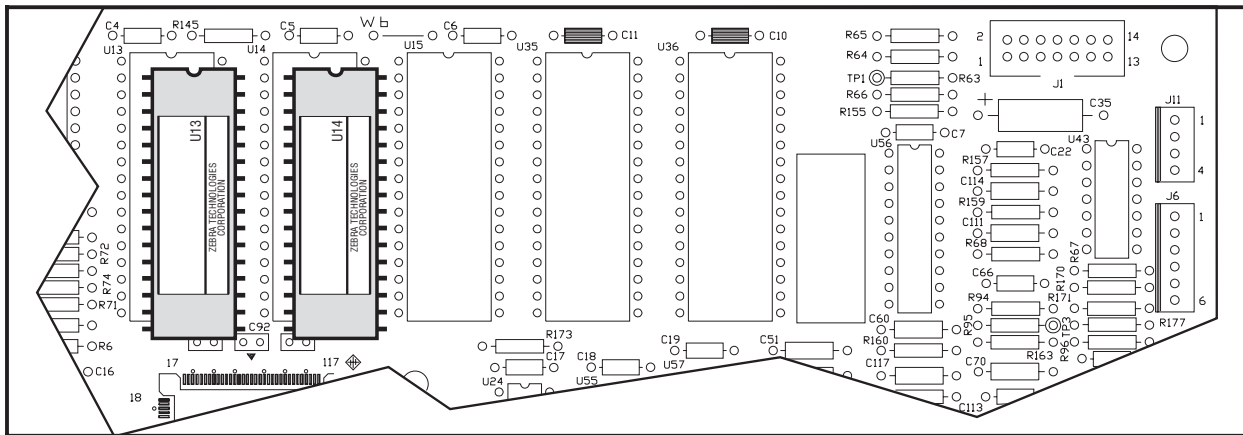


Figure 5.17 105S (6 and 8 Dots/mm) EPROM Locations

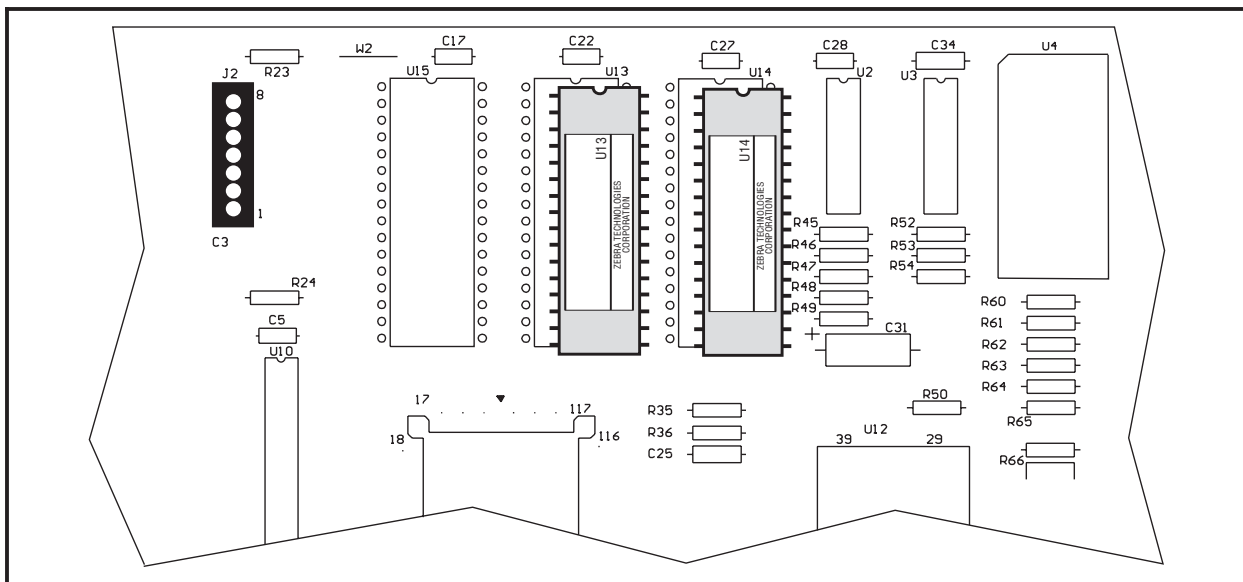


Figure 5.18 160S/105Se/105S (12 Dots/mm) EPROM Locations

Main Drive Belt — Removal, Replacement, and Adjustment

1. Turn the printer OFF and remove the AC Power Cord.
2. Refer to Figure 5.19 and rotate the Ribbon Take-Up Pulley until the three holes in the pulley are aligned with the three mounting screws which hold the Ribbon Take-Up Spindle Assembly to the Printer Frame.
3. Use a 9/64" Allen wrench to reach through the holes in the Ribbon Take-Up Pulley and loosen, but do not remove, the three Spindle Assembly mounting screws.
4. Slide the Ribbon Take-Up Spindle Assembly to the right to relieve the tension on the Main Drive Belt.
5. Remove the old Main Drive Belt and install the new one.
6. Hook a 2200 gram Spring Scale to the belt as shown in Figure 5.19, and carefully slide the Ribbon Take-Up Spindle Assembly to the left to increase belt tension.
7. When a scale reading of 2000 grams \pm 250 grams (4.5 lbs \pm 0.5 lbs) creates a deflection of 1/4", tighten the three mounting screws to a torque of 20 inch-pounds.

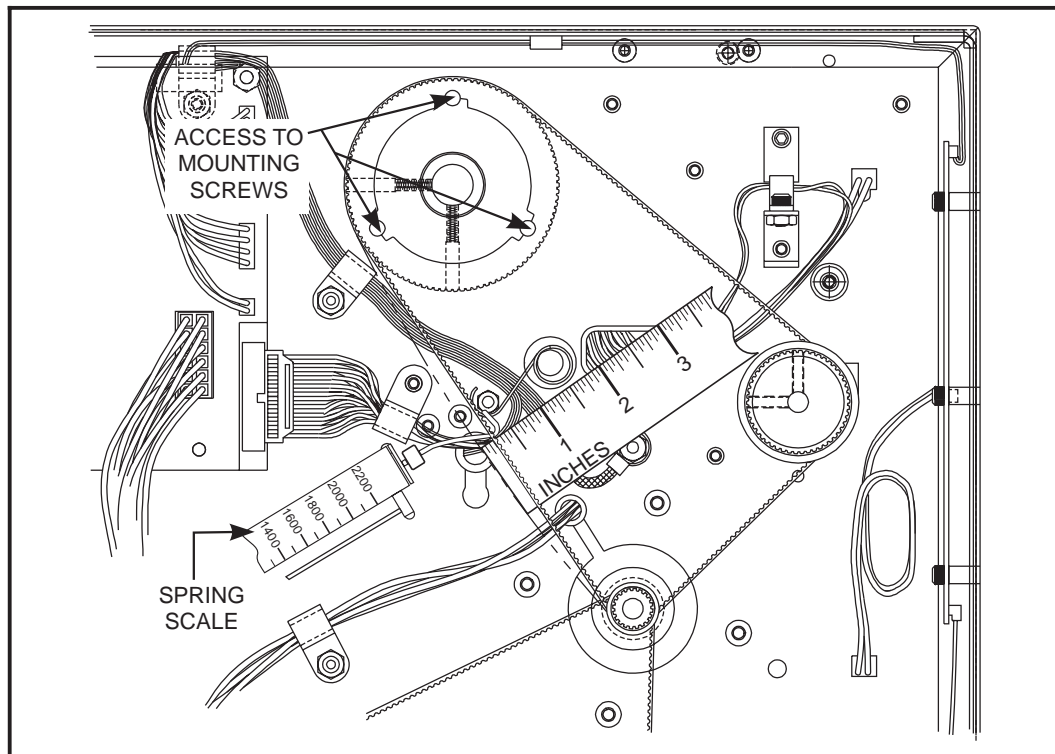


Figure 5.19 Main Drive Belt Replacement

Rewind Drive Belt — Removal, Replacement and Adjustment

1. Turn the printer OFF and remove the AC Power Cord.
2. Refer to Figure 5.20 and note the position of the Idler Gear used to adjust the tension of the Rewind Drive Belt.
3. On the Media Side of the printer, locate the lower access hole in the Side Frame and remove the hole plug. Use a 7/64" Allen wrench with a 10" minimum shaft length to reach through the hole and loosen the Idler Gear Mounting Screw.
4. Slide the Idler Gear Assembly to the right to relieve the tension on the Rewind Drive Belt.
5. Remove the old Rewind Drive Belt and install the new one.
6. Hook a 2200 gram spring scale to the belt as shown in Figure 5.20, and carefully slide the Idler Gear Assembly to the left to increase belt tension.
7. When a scale reading of 2000 grams \pm 250 grams (4.5 lbs \pm 0.5 lbs) creates a deflection of 1/4", tighten the Idler Gear Mounting Screw to a torque of 20 inch-pounds.

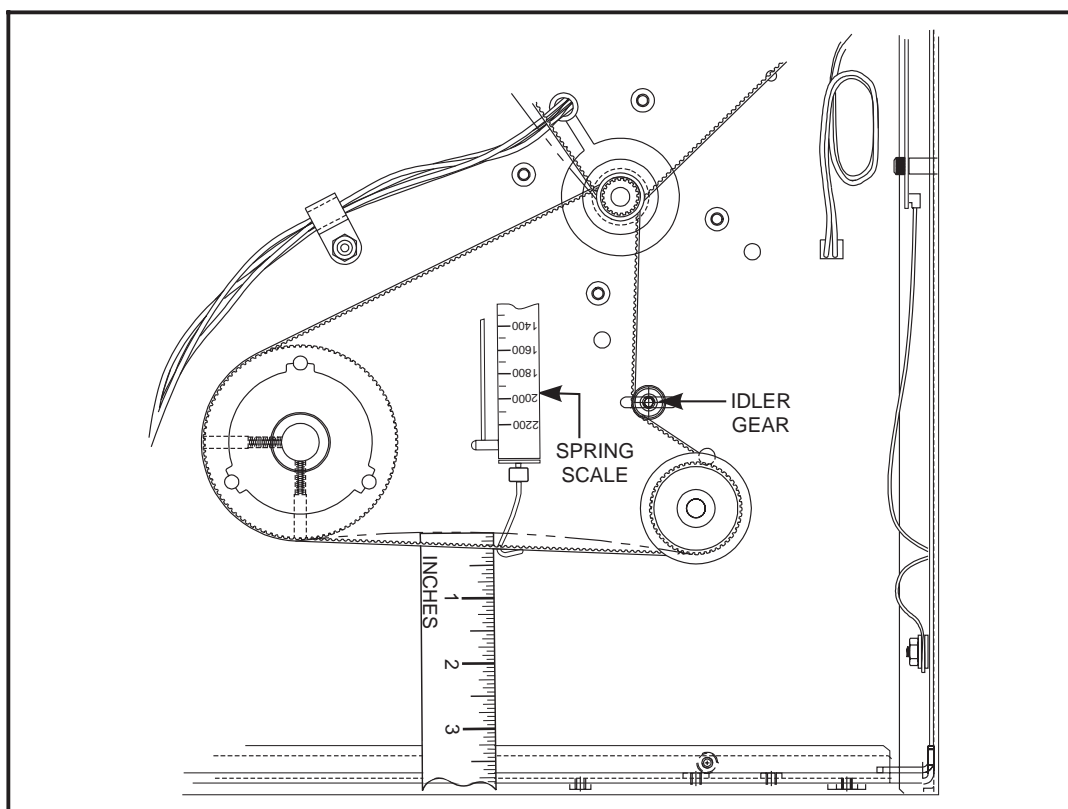


Figure 5.20 Rewind Drive Belt Replacement

AC Power Fuse Replacement

A user-replaceable AC Power Fuse is located just above the Power ON/OFF Switch on the rear of the printer. For a 115 VAC installation, the replacement fuse is a 3AG Fast Blow style rated at 5 Amp/250VAC. For a 230 VAC installation, the fuse is the same style but rated at 3 Amp/250VAC.

CAUTION

Turn the printer's AC Power Switch OFF and disconnect the printer's AC Power Cable before replacing the fuse.

To replace the fuse, insert the tip of a flatblade screwdriver into the slot designed into the Fuse Holder's End Cap. Press in slightly on the end cap and turn the screwdriver slightly counter-clockwise. The end cap disengages from the Fuse Holder and the fuse may be removed. To install a new fuse, reverse the sequence.

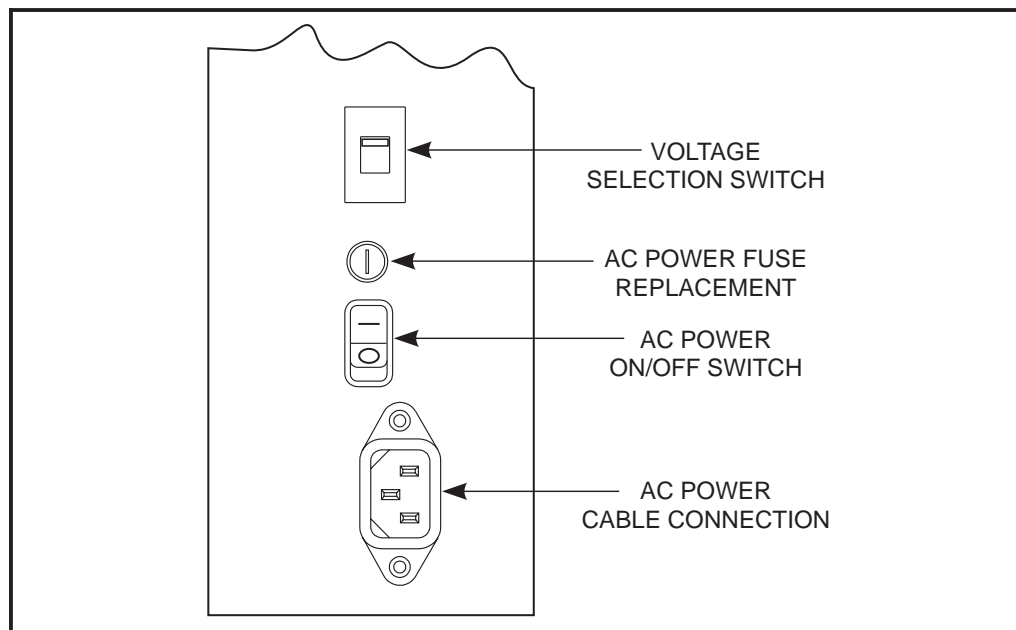


Figure 5.21 AC Fuse Replacement

Battery Replacement

One of the factory-installed options for the 105S printer is the Battery Backed-Up 256 KB RAM Memory. The Battery used with this option is a 3 VDC Lithium Coin Battery type CR2477 (Zebra Part # 44641).

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended.
When discarding used batteries, do not incinerate.

The battery is located on the printer's Main Logic Board. It is recommended that a qualified Service Technician replace this battery since internal access to the electronics area of the printer is required.

CAUTION

Turn the printer's AC Power Switch OFF and disconnect the printer's AC Power Cable before replacing the battery.

Prior to removing and replacing the battery, observe proper electrostatic and electrical safety precautions.

To remove the old battery, gently raise the right edge and slide the battery to the right and out of the battery holder.

Insert the new battery with the negative (–) side toward the circuit board. The positive (+) side should be visible when the battery is correctly installed.

To use the Battery Backed-Up RAM Memory, the “Battery Dead” condition must be reset. The preferred method of resetting this condition is to send the “~JB” ZPL II command to the printer.

A second method for resetting the “Battery Dead” condition is available at the printer's front panel. However, when this method is used, the printer configuration is reset to the Factory Default condition. The printer must then be reconfigured for the application and a Printer Calibration must be performed. To reset the “Battery Dead” condition using this method, press and hold the PAUSE and FEED Keys while turning the AC Power ON.

Cutter Adjustments and Replacement Instructions (105Se Only)

Printer Disassembly

The printer must be partially disassembled in order to remove and install parts. Refer to the illustrations in this Section and follow the procedures that follow.

Internal Access

1. Turn Printer Power OFF at the rear of the printer and disconnect the AC Power Cord *and* all signal interface cables.
2. Remove all Media and Ribbon from the printer.
3. Access the Electronics Cabinet by removing the mounting screws in the left side panel.

Cutter Motor Removal

1. Refer to Figure 5.22. Remove the E-ring that attaches the Lower Drive Arm to the Slotted Link.
2. Remove the screw that attaches the Mounting Post to the Main Frame.
3. Remove the cutter linkage, flat washer, and bearing from the printer.
4. Loosen the two set screws that attach the Lower Drive Arm to the Cutter Motor shaft.
5. Pivot the Lower Drive Arm clockwise until the Lower Drive Arm flag disengages the sensor.
6. Remove the Lower Drive Arm from the Cutter Motor shaft.
7. Disconnect the Cutter Motor Cable from the Cutter Board.
8. Remove the motor mounting screws that attach the Cutter Motor to the Main Frame.
9. Pull the Cutter Motor away from the Main Frame, and the motor cable and Grommet from the slot in the Main Frame.

Cutter Motor Installation

1. Refer to Figure 5.22. Position the Cutter Motor near the mounting hole on the mechanical side of the printer.
2. Pass the Cutter Motor Cable through the slit in the Rubber Grommet. Insert the Grommet into the slot located in the lower right area of the motor mounting hole, then slide it into the small hole. The electrical connector must be positioned on the electronics side of the printer. (To prevent the wires from coming out, rotate the Grommet so the cut is facing away from the motor.)
3. Position the Cutter Motor against the printer frame so that the screw holes in the motor line up with the holes in the frame, with the motor shaft toward the front of the printer.
4. Use the two motor mounting screws to firmly attach the motor to the printer frame.
5. Insert the Lower Drive Arm onto the Cutter Motor shaft.
6. Pivot the Lower Drive Arm counterclockwise until the Lower Drive Arm flag engages the sensor.
7. Tighten the set screws that attach the Lower Drive Arm to the Cutter Motor shaft.
8. Reinstall the cutter linkage, flat washer, and bearing.
9. Replace the screw that attaches the Mounting Post to the Main Frame.

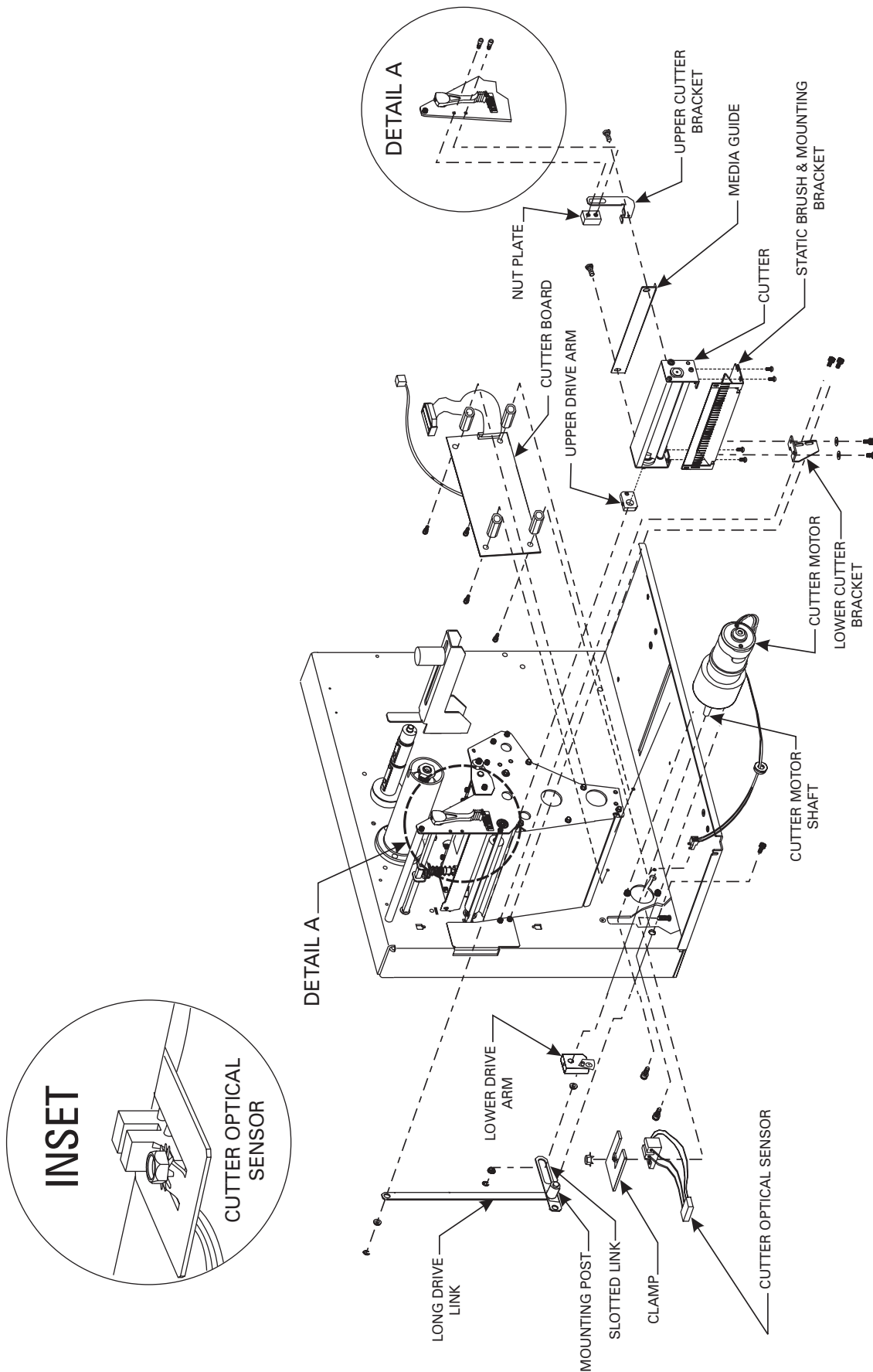


Figure 5.22 Cutter Installation

10. Install the E-ring that attaches the Slotted Link to the Lower Drive Arm.

Cutter Mechanical Assembly Removal

NOTE: The Cutter Module should NOT be disassembled, but replaced as a unit. Any disassembly of the Cutter Module will void the warranty.

1. Refer to Figure 5.22. Remove the E-ring and washer from the top of the Long Drive Link.
2. Refer to Figure 5.22, Detail A. At the Side Plate, remove the two socket head cap screws from the Upper Cutter Bracket and Nut Plate.
3. Loosen the flat head screw that attaches the Upper Cutter Bracket to the Cutter Module.
4. Remove the two socket head cap screws from the Lower Cutter Bracket.
5. Lift the outer end of the Cutter Module to remove the module.
6. Remove the two flat head screws that attach the Media Guide and Upper Cutter Bracket to the Cutter Module.
7. Remove the four Phillips head screws that attach the Static Brush Mounting Bracket to the bottom of the Cutter Module.

Cutter Mechanical Assembly Installation

1. Refer to Figure 5.22. Use the four Phillips head screws to attach the Static Brush Mounting Bracket to the bottom of the Cutter Module.
2. Use the two flat head screws to mount the Media Guide and Upper Cutter Bracket to the Cutter Module.
3. Carefully work the Cutter Module into position in the Main Frame in front of the Printhead.
4. Loosely attach the Upper Cutter Bracket to the Side Plate with the Nut Plate and two socket head cap screws.
5. Align the slots in the Lower Cutter Bracket with the threaded holes in the Main Frame. Loosely attach the Lower Cutter Bracket with the two socket head cap screws.
6. With the Cutter Module loosely installed, it is necessary to properly align it and tighten all of the screws.

Open the Printhead and observe the position of the Tear-Off Bar (in front of the Platen Roller) and the Rear Cutter Blade. Position the Cutter Module so that the Rear Cutter Blade is parallel with the outer edge of the Tear-Off Bar across the entire width of the media path. The Cutter Module should be positioned as far forward as possible while maintaining parallelism with the Tear-Off Bar. This should prevent interference of the Rear Cutter Blade with the Tear-Off Bar.

After the above conditions are both met, tighten all mounting screws.

Carefully tighten the flat head screw that attaches the Upper Cutter Bracket to the Cutter Module. Be careful not to disturb the position of the Media Guide; if this part moves out of position, set its height so that its lower edge is flush with the rear opening in the Cutter Module.

7. The Rear Cutter Blade is held in position by two springs. If these springs touch the Tear-Off Bar or other printer parts, the Rear Cutter Blade will not float properly and will cause excessive wear and premature failure of the Cutter Blades.
8. Check the clearance between the back of the Cutter Mechanism and the Tear-Off Bar by inserting a screwdriver from the front of the Cutter Mechanism and press the top of the Rear Cutter Blade toward the printer. The blade should move a minimum of .030 inches. If necessary, loosen the four Phillips head screws on the bottom of the Cutter Module and reposition the Cutter Mechanism away from the Tear-Off Bar.
9. Attach the E-ring and washer to the Upper Drive Arm at the top of the Long Drive Link.

Drive Link Assembly Installation

1. Refer to Figure 5.22. Remove the screw from the Mounting Post on the Drive Link Assembly. Locate the Post in the mounting hole in the frame and, from the media side of the frame, secure the Assembly with the screw.
2. The Upper Drive Arm is pre-assembled to the Cutter Module. Assemble the Long Drive Link of the Drive Link Assembly over the connecting post on the Upper Drive Arm and secure it with the washer and E-ring.
3. Attach the Lower Drive Arm of the Drive Link Assembly to the Cutter Motor Shaft. Loosen the set screws to insure the Lower Drive Arm rotates freely on the Motor shaft.
4. Apply a small amount of grease to the slot in the Slotted Link Assembly where the Bearing will ride. Remove any excess grease to avoid damaging the Cutter Optical Sensor.

Cutter Circuit Board Removal

1. Refer to Figure 5.22. Disconnect all cables from the Cutter Board.
2. Remove the four socket head cap screws that mount the Cutter Board to the standoffs.
3. Remove the Cutter Board.

Cutter Circuit Board Installation

1. Refer to Figure 5.23. Attach the power cable to J1 on the Cutter Circuit Board.
2. Refer to Figure 5.23. Attach the data cable to J2 on the Cutter Circuit Board.
3. Locate the four (4) standoffs on the printer frame where the Cutter Board will be mounted.
4. Route the Cutter Motor Wires between the two righthand standoffs and out under the bottom of the Circuit Board.
5. Position the Cutter Circuit Board over all four standoffs.
6. Insert the screw through the lower right-hand Circuit Board mounting hole (do not tighten at this time).
7. Install the three remaining mounting screws and tighten all four screws.

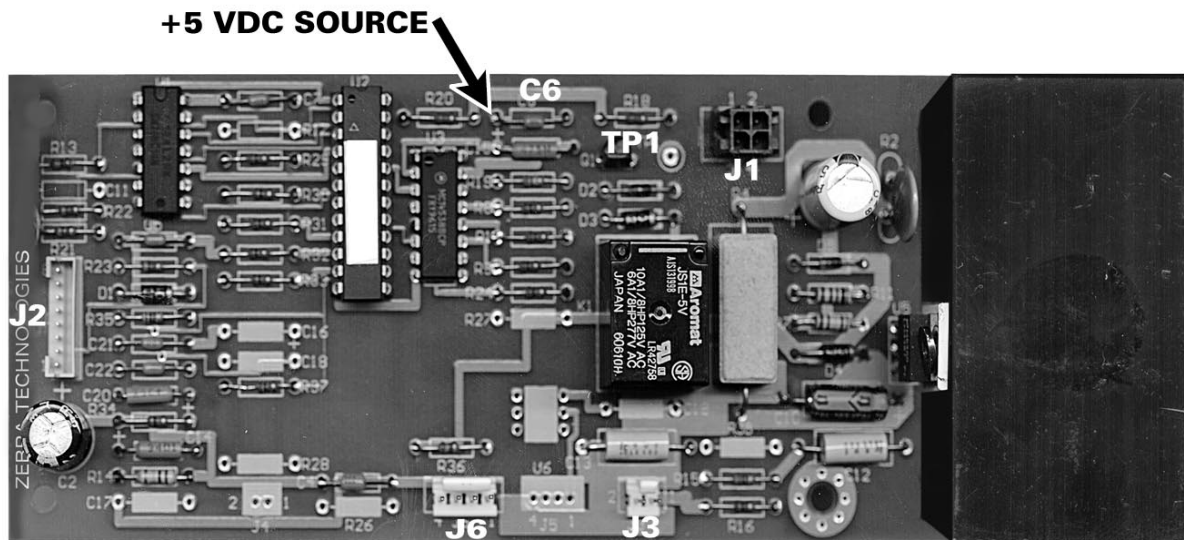


Figure 5.23 Cutter Circuit Board

8. Pass the Cutter Board Power Cable along the bottom of the printer frame toward the Main Logic Board.
9. Plug the Cutter Motor leads into the Cutter Motor Connector, J3, on the Cutter Circuit Board. (Black lead to the left. **Note:** This is a “polarized” connector.)
10. Refer to Figure 5.23. Plug the Cutter Sensor wires into the Cutter OPTO Connector, J6, on the Cutter Circuit Board.
11. Check the installation work and insure that during operation no wiring will touch any moving parts.

Optical Sensor Removal

1. Refer to Figure 5.22. Remove the nut that holds the Cutter Optical Sensor Assembly (wires, Sensor Clamp, and Optical Sensor) in position.
2. Lift the Cutter Optical Sensor Assembly off the Sensor Mounting Post.

Optical Sensor Installation

1. Refer to Figure 5.22 and the Figure 5.22 inset. Install the Cutter Optical Sensor Assembly on the Sensor Mounting Post. (The Sensor part of the Assembly should be mounted toward the printer frame.)
2. Place the Sensor Clamp over the Optical Sensor and start the nut on the Sensor Mounting Post. (DO NOT tighten the nut.)
3. Route the Sensor wires under the clamp and toward the rear of the printer, and lightly tighten the nut to hold the wires in position. (**DO NOT pinch the wires.**)

Lower Drive Arm Mechanical Alignment

1. Connect the Power Cable from J1 on the Cutter Board to J4 on the Printhead Adapter Board.

2. Connect the Data Ribbon Cable from J2 on the Cutter Board to J5 on the Main Logic Board.
3. Attach the AC Power Cord and turn the printer ON. **(If the Cutter Motor starts, wait for it to stop.)**

NOTE: A critical position adjustment is made in steps 4 and 5. **The Cutter Motor must be rotated until the two flat surfaces on the Cutter Motor shaft are aligned with the set screws in the Lower Drive Arm, while the Lower Drive Arm is in a vertical position (Sensor Flag down).**

4. Refer to Figure 5.23. Attach a test clip at one end of a jumper cable to the lead on the left end of Capacitor C6 (+5 VDC SOURCE) on the Cutter Board.
5. Briefly touch the test clip at the other end of the jumper cable to Test Point TP1 on the Cutter Board to “jog” the Cutter Motor to the desired position.
6. Position the Lower Drive Arm so the Sensor Flag is centered between the front and back portions of the Cutter Optical Sensor, then tighten the two set screws.
7. The set screws must be extremely tight to insure proper operation of the Cutter Mechanism. Tighten the set screws with a 5/64" Allen Key. (As a reference, when the set screws are tight, the Allen Key should deflect approximately 0.6" (1.5 cm) past the point of tightness. The tightness specification is 20 in. lbs. (2.3 N-m).
8. Activate the Cutter Motor, and make certain the Sensor Flag travels through the slot in the Cutter Optical Sensor **without touching it**.
9. Turn the printer Power Switch OFF.

Upper Drive Arm Alignment

The Upper Drive Arm is part of the Cutter Mechanical Assembly and has been properly aligned at the factory. If for some reason the factory position is altered, the following procedure may be used to realign the Upper Drive Arm. The printer must be programmed to operate in the Cutter Mode prior to performing the following procedure.

1. Remove the printer's Left Side Panel, if attached.
2. Loosen the Allen head cap screw that clamps the Upper Drive Arm to the Rotary Cutter Blade shaft. (The Drive Arm may be snug on the shaft.)
3. Apply power to the printer. The Lower Drive Arm of the Drive Link Assembly should rotate once and stop when the Sensor Flag activates the Optical Sensor.
4. Refer to Figure 5.24. **Only after the preceeding step**, hold the Upper Drive Arm in position and adjust the Rotary Cutter Blade so that the gap between its cutting edge on the left end and the cutting edge of the Rear Cutter Blade is approximately a .100" (2.5mm) as gauged by eye.

NOTE: If the gap between the cutting edges is too large, the cutter may not cut properly across the entire media width. If the gap is too small, the media may catch on the Rotary Cutter Blade edge and cause a jam.

5. Position the Upper Drive Arm out from the cutter frame so its flat surface is flush with the end of the Rotary Cutter Blade shaft.

Tighten the Allen head cap screw with a 5/32 inch Allen bit socket on a torque wrench until the slot closes or until a torque of 100 in. lbs. (11.3 N-m) is reached.

NOTE: Overtightening the screw can damage the Drive Arm and can strip the threads.

6. Test the Cutter alignment by feeding maximum-width label stock through the printer and insuring that complete cutting of the label occurs. (If necessary, repeat steps 4, 5, and 6 to achieve complete cutting of the labels.)
7. With a felt tip pen, draw a line across the outer face of the Upper Drive Arm and the end of the cutter blade shaft. Should cutter operation problems ever occur, this “witness mark” will show at a glance if the alignment of the clamp and the cutter blade shaft has changed.

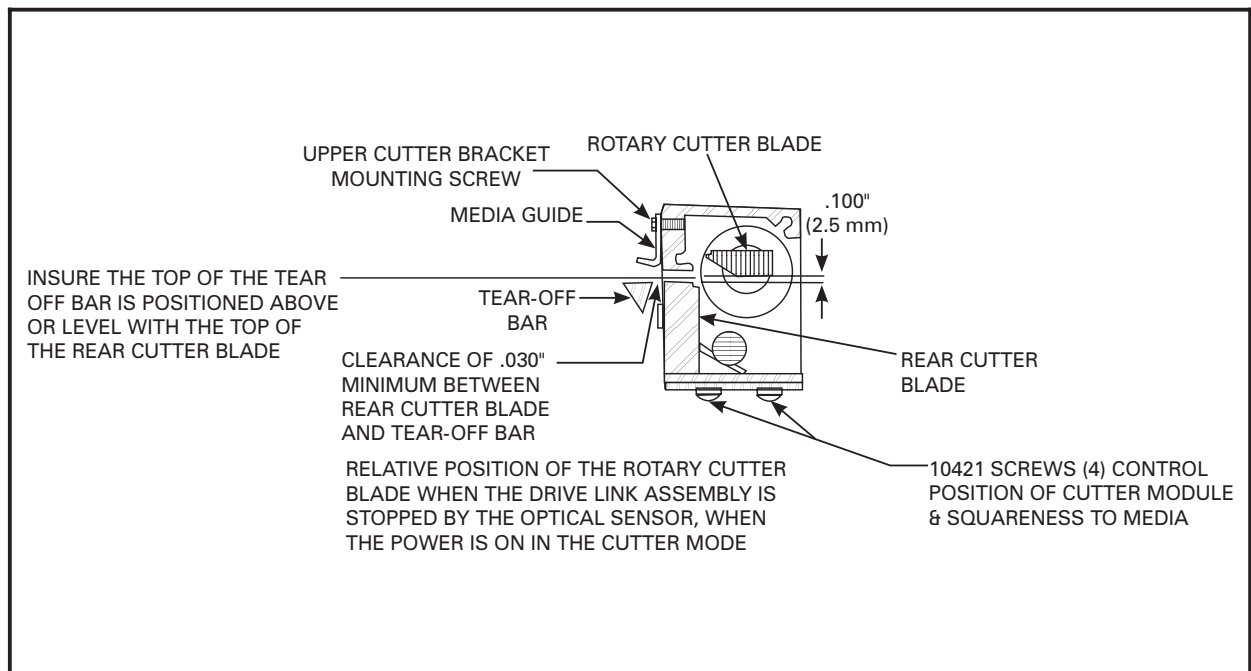


Figure 5.24 Cutter Mechanical Assembly Positioning



In this section...	Page
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Power-ON Troubleshooting.....	6-1
General Troubleshooting.....	6-2
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Troubleshooting

Consult the Troubleshooting Tables which follow and compare the printer output to the sample labels provided on the following pages to improve the quality of your labels.

Table 6.1 Power-ON Troubleshooting

SYMPTOM	DIAGNOSIS	ACTION
All LEDs light and stay ON, or all LEDs (except POWER LED) never turn ON.	Main Logic Board or EPROM faulty or loose interconnecting cables.	Insure cables are properly connected and EPROMs are properly installed or replace the Main Logic Board.
CALIBRATE LED turns OFF after 5 sec. but all other LEDs stay ON.	Main Logic Board Dynamic RAM faulty.	Replace Main Logic Board.
All LEDs Flash ON and OFF.	No significant amount of DRAM tested good.	Replace Main Logic Board.
All LEDs (except POWER LED) are OFF and no printer operation possible.	Printer misconfigured for Peel-Off Mode and Peel-Off Option not installed.	If Peel-Off is installed, check Take Label Sensor.
Printer locks up while running Power On Self Test.	Main Logic Board failure.	Replace Main Logic Board.

Table 6.2 General Troubleshooting

SYMPTOM	DIAGNOSIS	ACTION
Printer stops. RIBBON LED and PAUSE LED both ON.	Media not loaded or incorrectly loaded.	Load media correctly.
	Misadjusted Media Sensor. 1. In continuous media mode, non-continuous media is loaded. 2. In non-continuous media mode, continuous media is loaded.	Check Media Sensor operation. Adjust if necessary. (Run Printer Calibration). 1. Calibrate. 2. Calibrate.
Printer stops. PAPER/RIBBON LED Flashes and the PAUSE LED ON.	Ribbon not loaded or incorrectly loaded.	Load ribbon correctly.
	Ribbon Sensor not sensing ribbon that is loaded correctly. Misadjusted Ribbon Sensor. 1. In thermal transfer mode, ribbon is out. 2. In thermal direct mode, ribbon is in.	Check Ribbon Sensor operation. Adjust if necessary. (Run Printer Calibration). 1. Calibrate. 2. Calibrate.
Printer stops. HEAD OPEN LED Flashes and PAUSE LED ON.	Printhead is not fully closed.	Close printhead completely.
	Head Open Sensor not detecting Flag or Flag not in proper position.	Check Head Open Sensor and Flag for proper operation.
Printer stops and HEAD LED ON.	Printhead element is overheated.	Printer resumes printing when the printhead element cools.
Printer prints across web or in wrong position.	Loss of registration indicating a Media Sensor problem.	Adjust Media Sensor position and then, if needed, adjust the Media Sensor sensitivity.
	Printer set for continuous media, but non-continuous media is loaded.	Set printer for correct type of media.
Continuous printing occurring with the HEAD LED ON.	Printhead under temperature.	Check print quality. Printhead will heat up by printing, or move printer to a warmer area.
Printer stops and PAUSE LED lights.	Not enough memory to perform one of the functions shown below. Functions: 1. Download Graphics. 2. Creating Bitmap (not enough memory for length of label). 3. Building Format (label too complex).	You may do any of the following: 1. Check for proper Communication Configuration. 2. With PAUSE ON, use the “~HM” ZPL II Command to display the amount of memory free. 3. With PAUSE ON, press CANCEL to skip that label format and continue to the next one. 4. Cycle Power OFF and back ON to clear printer memory and start again.

Table 6.2 General Troubleshooting (Cont'd)

SYMPTOM	DIAGNOSIS	ACTION
Poor Print Quality.	Darkness too low.	Increase Burn Temp.
	Incorrect Media and Ribbon combination.	Replace Media or Ribbon.
	Printhead Adjustments incorrect.	Perform required adjustments.
Truncated print, no print, or FEED Key operates incorrectly while using non-continuous media.	Label Length Parameter is set less than the actual label length.	Set the correct label length.
	Printer was powered ON in Peel-Off mode without media being properly loaded.	Load media correctly for Peel-Off mode.
	Printer is not calibrating media properly.	Perform Media Adjustments. Set value with the “^SS” ZPL II command.
Long tracks of missing print on several labels.	Wrinkled ribbon.	See “Wrinkled Ribbon” below.
	Print Element damaged.	Replace printhead.
Fine gray lines on blank labels at angles.	Wrinkled ribbon.	See “Wrinkled Ribbon” below.
Wrinkled ribbon.	Ribbon fed through machine incorrectly.	Load ribbon correctly.
	Incorrect Darkness setting.	Set the Darkness to the lowest setting possible for good print quality.
	Incorrect printhead pressure or balance.	Set the pressure to the minimum needed. See Print Quality Adjustment and Printhead Pressure Adjustment procedures.
	Media not feeding properly; it is walking from side to side.	Make sure the media path remains straight by positioning the Media Guide closer to the media.
	Strip Plate needs adjusting.	Perform adjustments.
	Ribbon Supply Spindle needs cleaning or tension needs adjusting.	Perform cleaning or adjustments.
	Printhead needs realigning with Platen Roller.	Perform adjustments.
	Ribbon Take-up Spindle needs cleaning or tension needs adjusting.	Perform cleaning or adjustments.
Light printing or no printing on the left or right side of the label.	Printhead pressure needs balancing.	Adjust balance. See Printhead Pressure Adjustment procedures.

Table 6.2 General Troubleshooting (cont'd)

SYMPTOM	DIAGNOSIS	ACTION
Misregistration and skips labels.	Misadjusted Media Sensors.	Perform Media Sensor Adjustments.
	Improper spindle tensions.	Perform Spindle Adjustments.
	Improper ZPL II format.	Correct the ZPL II format.
Misregistration and misprint of 1 to 3 labels.	Media was pulled when motor was not moving.	Open and close the printhead.
	Printer, that is in Peel-Off mode, was powered ON without media being properly loaded.	Load media correctly for Peel-Off mode.
	Misadjusted Media Sensor.	Place Media Sensor in the proper position.
Vertical drift in top-of-form registration.	A plus or minus 4-6 dot row (approx. 1/2 mm) vertical drift is possible due to the different tolerances and printer modes.	Perform the "Tear-Off Position Setting" front panel command to correct.
Label jam in rear area of printhead.	Upper Media Plate needs cleaning.	Clean the Upper Media Plate.
Changes in parameter settings did not take effect.	All MODE LEDs must be OFF before turning the power OFF. A "^MPS" ZPL II command disables Mode Function Save.	The "^MPE" ZPL II command enables all mode functions to be front panel programmable.
	If the problem continues, there may be a problem on the Main Logic Board.	Replace the Main Logic Board.

Table 6.3 Cutter Module Troubleshooting

SYMPTOM	DIAGNOSIS	ACTION
Printing stops. PAPER/RIBBON, PAUSE, and CANCEL LEDs on.	Media jammed in Cutter.	Remove media, clean Cutter Module.
	Connecting cables not connected to Cutter Circuit Board.	Plug cables into Cutter Circuit Board.
	Cutter Module is dirty.	Clean Cutter Module.
	End of the media is not positioned correctly on top of the platen.	Re-position media so that the end is on top of the platen.
In Cutter Mode, skewed or stuck labels.	Cutter is dirty.	Clean the Cutter Module.
The Cutter is not cutting labels cleanly.	Cutter is dirty.	Clean the Cutter Module.
	Cutter blades are dull.	Replace the Cutter Module.
Labels jamming in Cutter, or labels are being cut more than once.	Cutter is dirty.	Clean the Cutter Module.
	Label length is too short.	Increase label length. See "Adjusting the Tear-Off Position" in <i>Getting Ready to Print</i> .

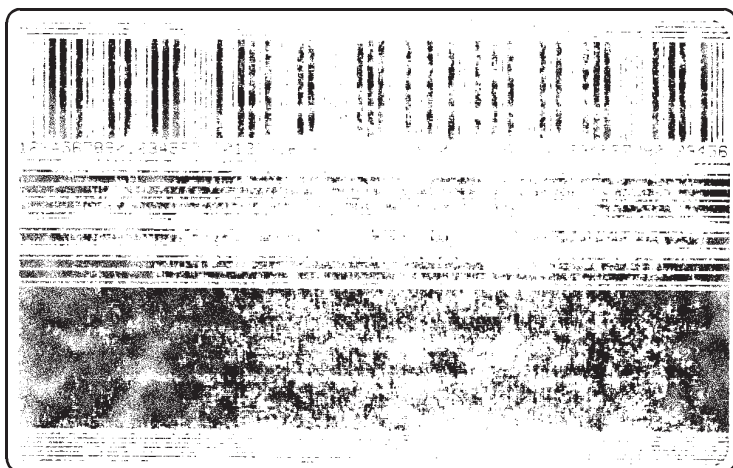


Unacceptable Label:

Darkness low

Printhead positioned correctly

Toggles balanced
(equal pressure on left
and right sides)



Unacceptable Label:

Darkness very low

Printhead positioned correctly.

Toggles balanced
(equal pressure on left
and right sides)

**Unacceptable Label:**

Darkness properly set

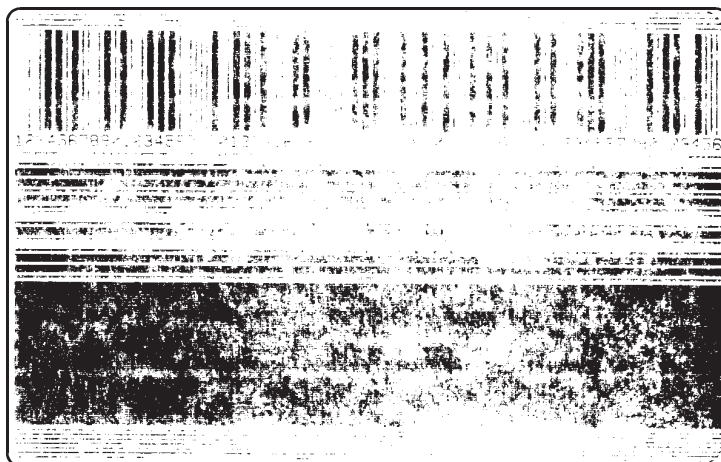
Printhead too far forward

“Scratch flowers” on black area (foggy appearance)

Printhead needs to be moved rearward

Walk out wrinkle with feed button and readjust

Toggles balanced (equal pressure on left and right sides)

**Unacceptable Label:**

Darkness properly set

Printhead way too far forward

“Scratch flowers” on black area (washed out appearance)

Printhead needs to be moved rearward

Walk out wrinkle with feed button and readjust

Toggles balanced (equal pressure on left and right sides)



Unacceptable Label:

Darkness properly set

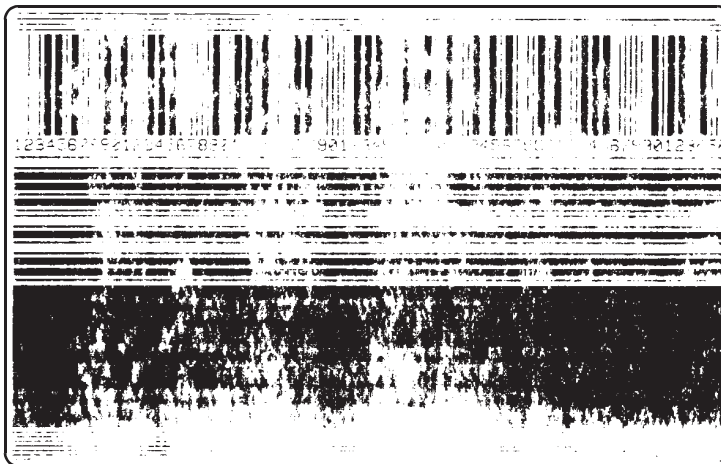
Printhead too far back

Breakup on trailing edges of bars (opposite the direction of movement)

Black is splotchy

Printhead needs to come forward on both sides

Toggles balanced
(equal pressure on left
and right sides)



Unacceptable Label:

Darkness properly set

Printhead way too far back

Breakup on trailing edges of bars (opposite the direction of movement)

Black is splotchy

Printhead needs to come forward on both sides

Toggles balanced
(equal pressure on left
and right sides)

**Unacceptable Label:**

Darkness properly set

Printhead position
correct on right side way
too far back on left side

Noisy printing
(breakup on trailing edges
of horizontal bars -
splotchy on left side)

Toggles balanced
(equal pressure on left
and right sides)

**Unacceptable Label:**

Darkness Properly Set

Printhead Position
Correct On Left Side Way
Too Far Back On Right
Side

Noisy Printing
(Breakup on Trailing
Edges of Horizontal Bars
- Splotchy On Right Side)

Toggles Balanced
(Equal Pressure On Left
and Right Sides)



Unacceptable Label:

Darkness properly set

Printhead position
correct on left side too far
forward on
right side

Noisy printing
(breakup on leading edges
of horizontal bars -
splotchy on right side)

Toggles balanced
(equal pressure on left
and right sides)



Unacceptable Label:

Darkness Properly Set

Printhead Position
Correct On Right Side
Way Too Far Forward
On Left Side

Noisy Printing
(Breakup on Leading
Edges of Horizontal Bars
- Splotchy On Left Side)

Toggles Balanced (Equal Pressure On Left and Right Sides)

Factory Assistance

Should any problem be encountered which cannot be corrected with the aid of this manual, Technical Support should be contacted immediately to minimize or avoid printer downtime. Technical Support can also assist in determining if the printer should be returned for repair.

Returning Equipment

Should it become necessary to ship your printer, carefully pack the printer in a suitable container to avoid damage during transit. A note describing the failure must be enclosed with the unit. Whenever possible, the original shipping container should be used. If other containers are used, a procedure similar to the original factory packaging should be followed.

Enclose the unit in a protective, dust-proof bag and insure that the unit floats in an outer carton of shock-absorbing material.

A Return Materials Authorization (RMA) number is required for all equipment being returned. Contact Zebra Technologies Corporation's Technical Support Department to obtain an RMA number. Equipment returned for service without prior authorization may be refused.

CAUTION

Remove any ribbon and paper rolls from the media compartment, otherwise damage to the printer could result.

DO NOT package the printer in a rigid container without utilizing shockmounts or shock-absorbing packing material. A rigid container may cause damage to the printer by allowing shock on the outside to be transmitted undamped to the unit.



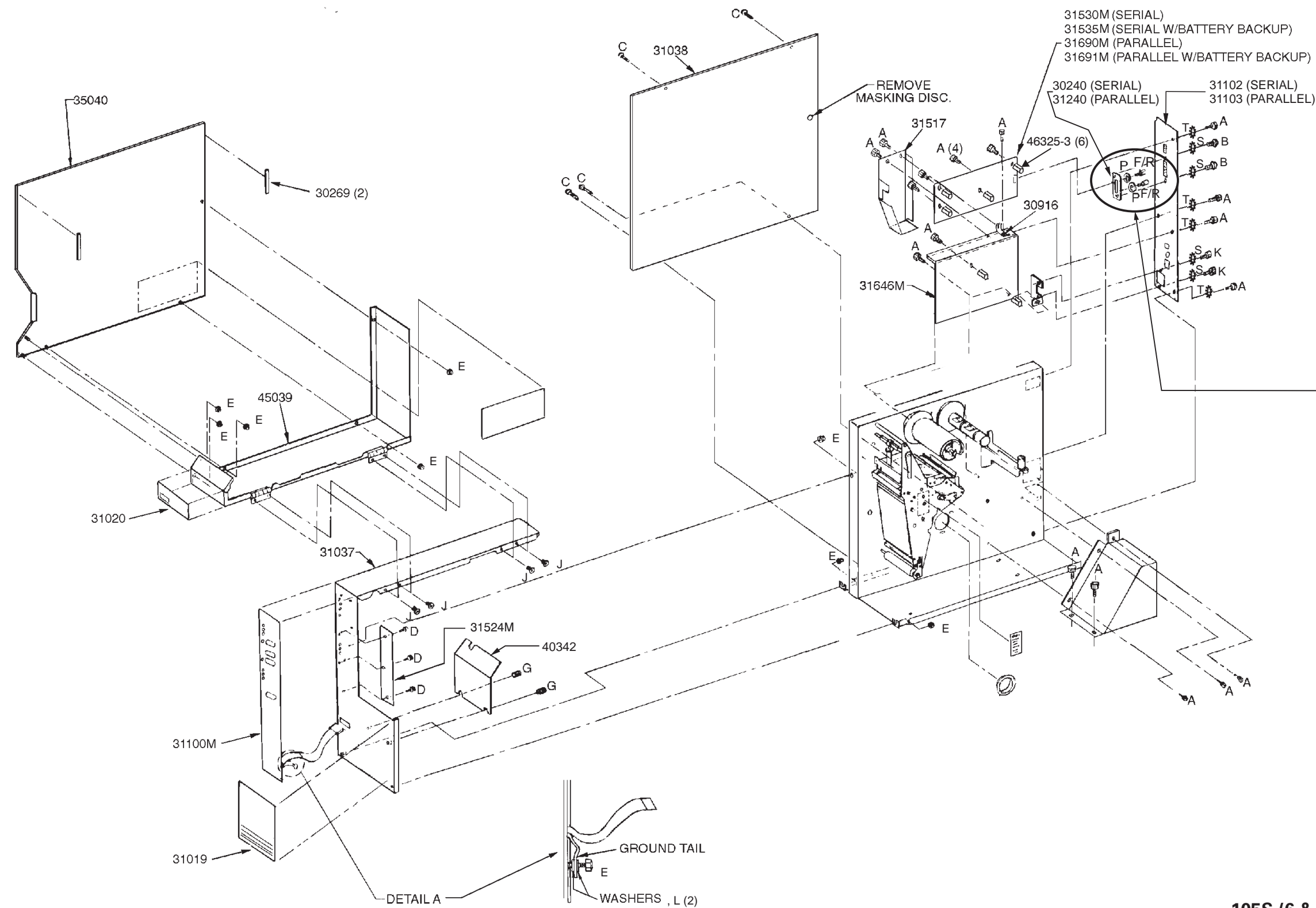
In this section...	Page
Mechanical Parts and Assemblies	7-1
Mechanical Parts and Assemblies Listing.....	7-1

Please note: This section contains common parts lists and drawings for both the 105S and 105Se. For parts lists/drawings specific to the 105Se, refer to Section 8.

Mechanical Parts and Assemblies

MECHANICAL PARTS AND ASSEMBLIES	
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105S Ribbon Supply Spindle Assembly	7-28/7-29
160S Ribbon Supply Spindle Assembly	7-30/7-31
105S Ribbon Take-Up Spindle Assembly	7-32/7-33
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105S Media Rewind Option Assembly	7-48/7-49
160S Media Rewind Option Assembly	7-50/7-51

PRINTER MODEL: 105S (6 dot and 8 dot)				
Final Assembly (Page 1 of 2)				
PART NUMBER		DESCRIPTION		QUANTITY
01130		Nut, 6-32		9
01152		Washer, Flat, .375 x .156 x .65		2
01155		Washer, Lock, #4		2
01159		Washer, External Lock, #6		4
01448		Screw, 6-32 .37		4
01912		Washer, External Lock, #4		4
07435		Screw, 6-32 .37		3
07696		Screw, 4-40 .31		2
09367		Stand-Off, 4-40		2
30240		Cover Plate with Opening (Serial)		1
30256		Nut, Thumb, 6-32 .50		2
30269		Pad, PVC, 4.0 x .37 .062		2
30391-004		Screw, 4-40 .25		2
30391-006		Screw, 4-40 .37		2
30392-004		Screw, 6-32 .25		18
30407-008		Screw, 6-32 .5		4
30916		Strap, Ground		1
31019		Label, Logo, 105S		1
31020		Label, Model Number		1
31037		Cover, PCB, 105S		1
31038		Panel, Left Side		1
31100M		Assembly, Membrane Switch, Front Panel		1
31102		Panel, Rear PCB (Serial)		1
31103		Panel, Rear PCB (Parallel)		1
31240		Cover Plate with Opening (Parallel)		1
31517		Shield, High Voltage		1
31524M		PCB, Front LED		1
31530M		PCB, Serial Main Logic		1
31535M		PCB, Serial Main Logic (w/Battery Backup)		1
31690M		PCB, Parallel Main Logic		1
31691M		PCB, Parallel Main Logic (w/Battery Backup)		1
31646M		Circuit Board, Power Supply		1
35040		Door, Media Access		1
40342		Bracket, Front Cover		1
45039		Panel, Left Top		1
46325-3		Spacer, 6-32		7

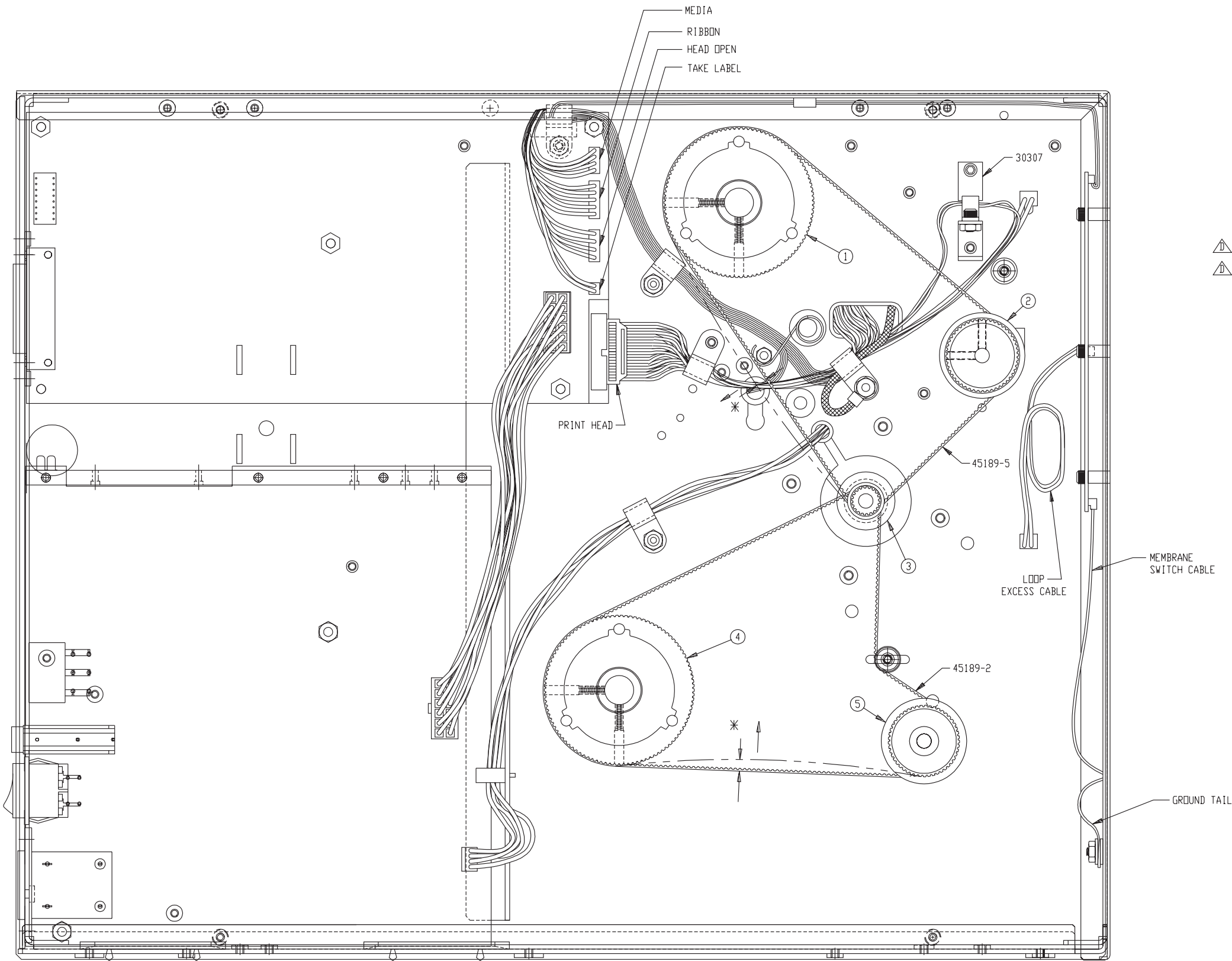


T	01159
S	01912
R	07696
P	01155
N	
M	
L	01152
K	30391-006
J	30407-008
H	
G	30256
F	09367
E	01130
D	07435
C	01448
B	30391-004
A	30392-004
CODE	PART NUMBER
SCREW LIST	

P	Serial Only
F	Serial Only
R	Parallel Only
MOUNTING HARDWARE	

105S (6 & 8 Dot/mm) Final Assembly

PRINTER MODEL: 105S (6 dot and 8 dot)			
Final Assembly (Page 2 of 2)			
PART NUMBER		DESCRIPTION	QUANTITY
30257		Pulley, Peel-Off Platen (6 Dots/mm)	1
30307		Flag, Head Open	1
30336-1M		Pulley, Ribbon Take-Up	1
30336-2M		Pulley, Media Take-Up	1
30355M		Pulley, Main Platen (6 Dots/mm)	1
30357M		Pulley, Stepper Motor (6 Dots/mm)	1
30914M		Pulley, Peel-Off Platen (8 Dots/mm)	1
40355M		Pulley, Main Platen (8 Dots/mm)	1
40357M		Pulley, Stepper Motor (8 Dots/mm)	1
45189-2		Belt, Media Rewind	1
45189-5		Belt, Main Drive	1

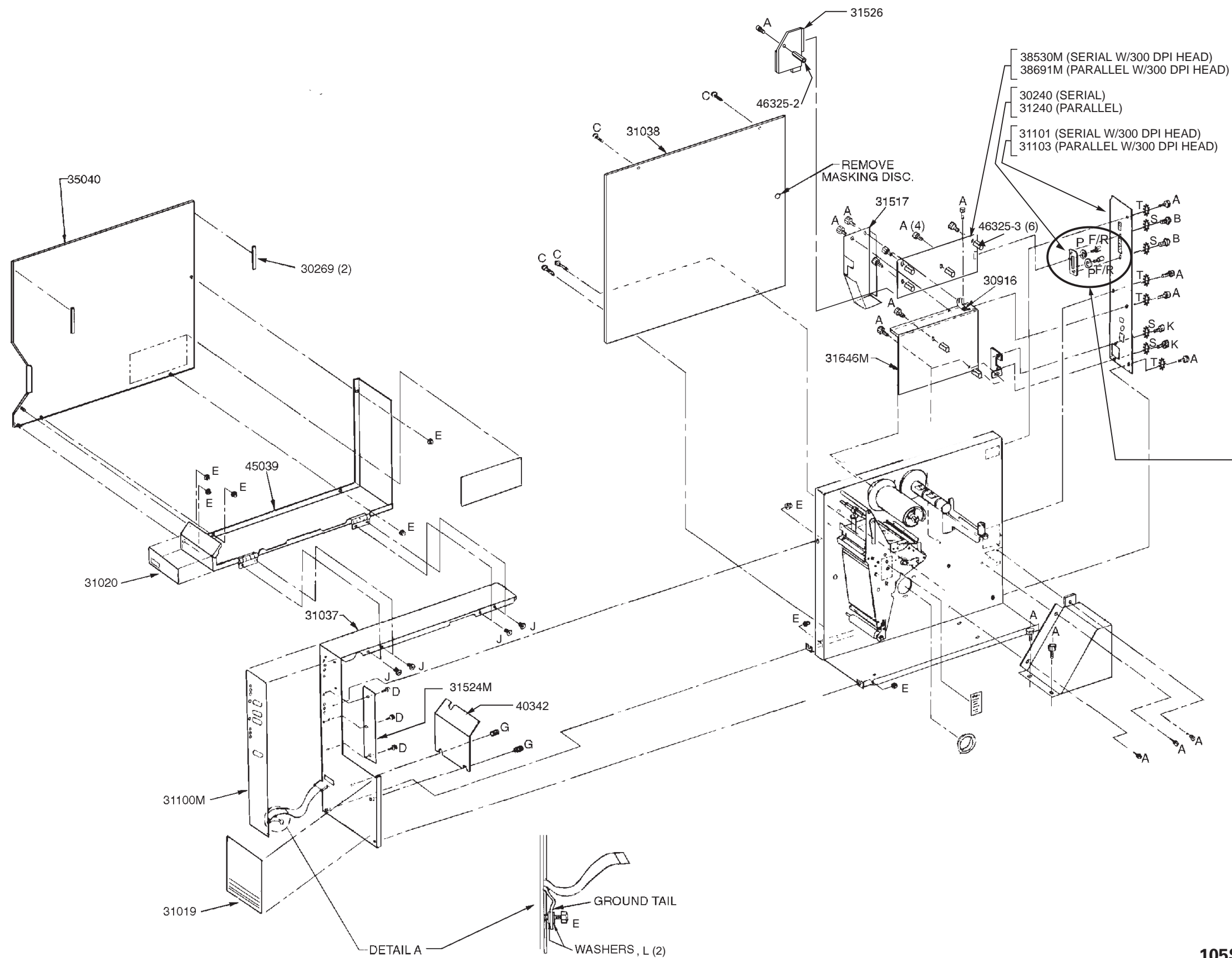


LOCATION	PULLEY	DIMENSIONS FROM MAIN-FRAME TO INSIDE GUIDING EDGE OF PULLEY
① RIBBON TAKEUP	30336-1M	FIXED IN SUB-ASSY
② MAIN PLATEN	40355M (8-DOT) 30355M (6-DOT)	11 MM (.433 IN.)
③ STEPPER	40357M (8-DOT) 30357M (6-DOT)	10 MM (.393 IN.)
④ MEDIA TAKEUP	30336-2M	FIXED IN SUB ASSY
⑤ PEEL-OFF	30914M (8-DOT) 30257 (6-DOT)	8 MM (.315 IN.)

NOTE

1. **BELT TENSION**
TO SET BELT TENSIONS, PULL ON BELTS WITH SPRING SCALE AT LOCATIONS SHOWN WITH "*" AND IN THE DIRECTION SHOWN UNTIL BELT IS DEFLECTED 1/4". SPRING SCALE SHOULD READ AS FOLLOWS:
- | BELT # | SCALE READING |
|---------|--------------------|
| | POUNDS GRAMS |
| 45189-5 | 4-5 1800-2200 |
| 45189-2 | 4-5 1800-2200 |
2. **PEEL/TEAR OFF BAR - PLATEN GAP**
PEELOFF BAR TO PLATEN GAP SHOULD BE SET TO .005 TO .015 MAX. GAP ALONG THE LENGTH OF THE PLATEN. GAP TO BE SET WITH A .004/.005 THICK BY 3" WIDE SHIM.
3. **HEAD OPEN/CLOSED FLAG**
WITH HEAD CLOSED, FLAG TO BE TIGHTENED IN POSITION AS SHOWN.

PRINTER MODEL: 105S (12 dot)			
Final Assembly (Page 1 of 2)			
PART NUMBER		DESCRIPTION	QUANTITY
01130		Nut, 6-32	9
01152		Washer, Flat, .375 x .156 x .65	2
01155		Washer, Lock, #4	2
01159		Washer, External Lock, #6	4
01448		Screw, 6-32 .37	4
01912		Washer, External Lock, #4	4
07435		Screw, 6-32 .37	3
07696		Screw, 4-40 .31	2
09367		Stand-Off, 4-40	2
30240		Cover Plate with Opening (Serial)	1
30256		Nut, Thumb, 6-32 .50	2
30269		Pad, PVC, 4.0 x .37 .062	2
30391-004		Screw, 4-40 .25	2
30391-006		Screw, 4-40 .37	2
30392-004		Screw, 6-32 .25	18
30407-008		Screw, 6-32 .5	4
30916		Strap, Ground	1
31019		Label, Logo, 105S	1
31020		Label, Model Number	1
31037		Cover, PCB, 105S	1
31038		Panel, Left Side	1
31100M		Assembly, Membrane Switch, Front Panel	1
31101		Panel, Rear PCB (Serial)	1
31103		Panel, Rear PCB (Parallel)	1
31240		Cover Plate with Opening (Parallel)	1
31517		Shield, High Voltage	1
31524M		PCB, Front LED	1
31646M		Circuit Board, Power Supply	1
35040		Door, Media Access	1
38530M		PCB, Serial Main Logic	1
38691M		PCB, Parallel Main Logic	1
40342		Bracket, Front Cover	1
45039		Panel, Left Top	1
46325-3		Spacer, 6-32	6

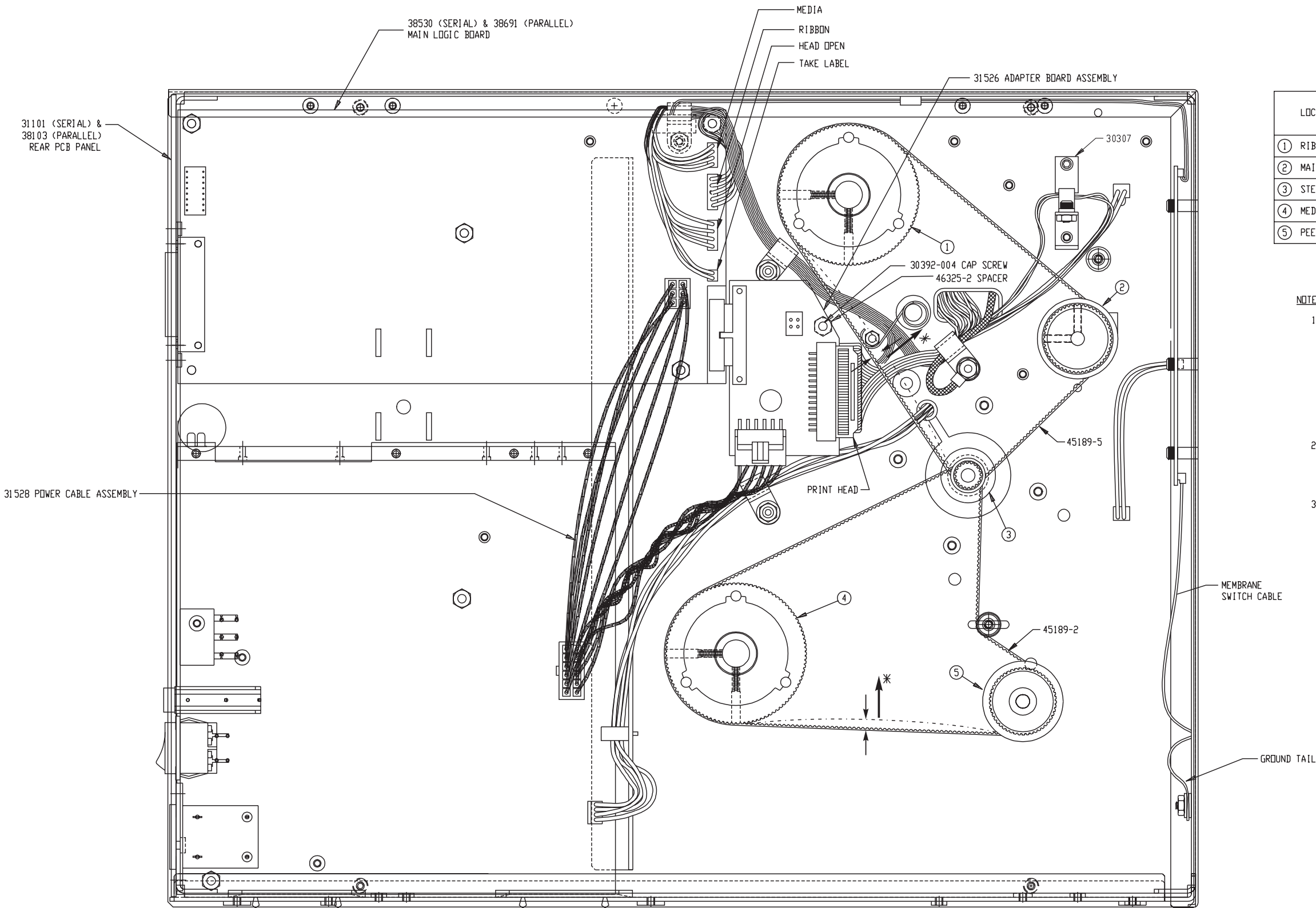


T	01159
S	01912
R	07696
P	01155
N	
M	
L	01152
K	30391-006
J	30407-008
H	
G	30256
F	09367
E	01130
D	07435
C	01448
B	30391-004
A	30392-004
CODE	PART NUMBER
SCREW LIST	

P	Serial Only
F	Serial Only
R	Parallel Only
MOUNTING HARDWARE	

105S (12 Dot/mm) Final Assembly

PRINTER MODEL: 105S (12 dot)			
Final Assembly (Page 2 of 2)			
PART NUMBER		DESCRIPTION	QUANTITY
30307		Flag, Head Open	1
30336-1M		Pulley, Ribbon Take-Up	1
30336-2M		Pulley, Media Take-Up	1
30357M		Pulley, Stepper Motor (12 Dots/mm)	1
30914M		Pulley, Peel-Off Platen (12 Dots/mm)	1
31526		Assembly, Adaptor Board	1
40355M		Pulley, Main Platen (12 Dots/mm)	1
45189-2		Belt, Media Rewind	1
45189-5		Belt, Main Drive	1



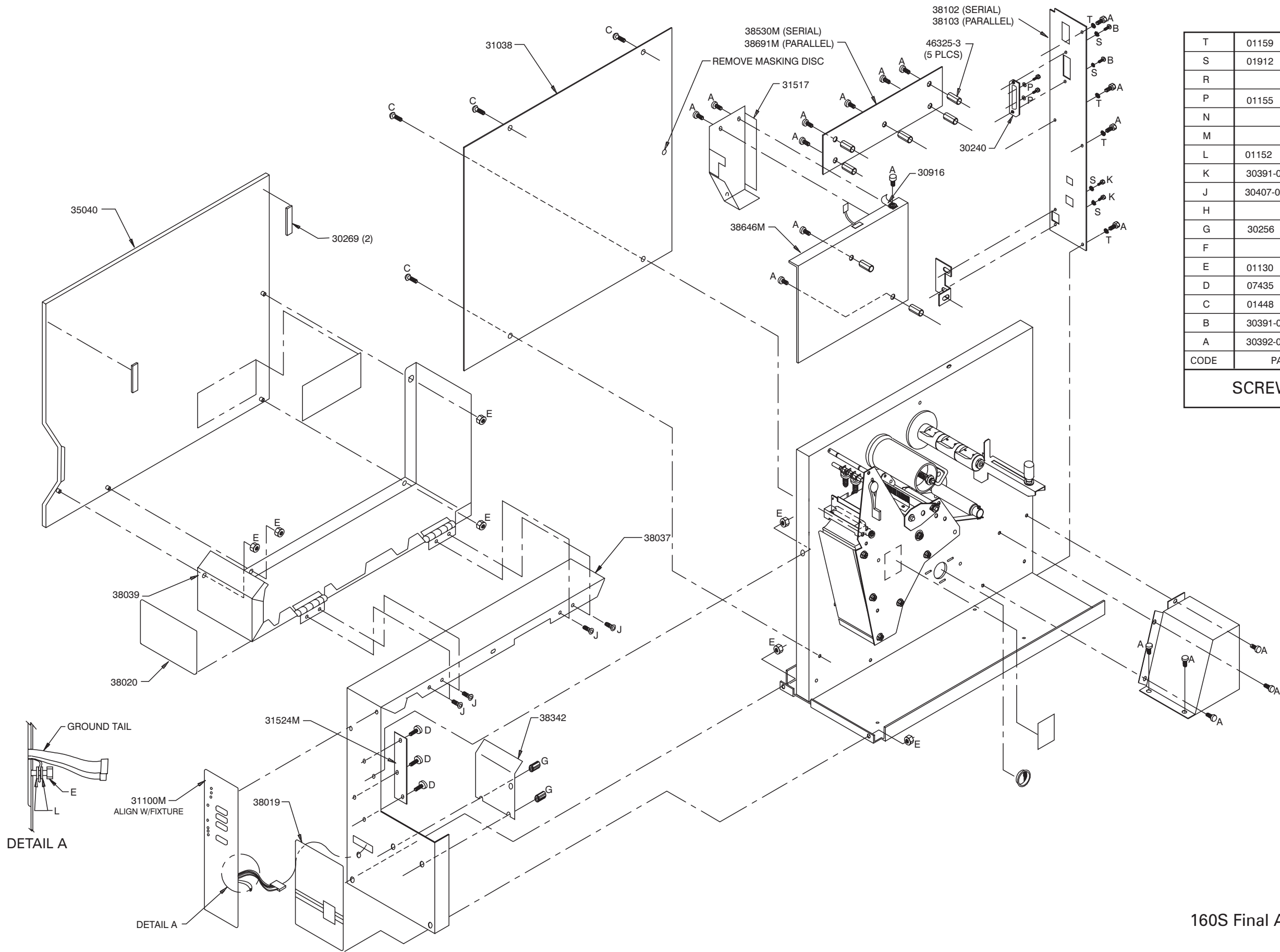
LOCATION	PULLEY	DIMENSIONS FROM MAIN-FRAME TO INSIDE GUIDING EDGE OF PULLEY
① RIBBON TAKEUP	30336-1M	FIXED IN SUB-ASSY
② MAIN PLATEN	40355M (12 DOT)	11 MM (.433 IN.)
③ STEPPER	30357M (12 DOT)	10 MM (.393 IN.)
④ MEDIA TAKEUP	30336-2M	FIXED IN SUB ASSY
⑤ PEELOFF	30914M (12 DOT)	8 MM (.315 IN.)

NOTE

1. BELT TENSION
TO SET BELT TENSIONS, PULL ON BELTS WITH SPRING SCALE AT LOCATIONS SHOWN WITH "*" AND IN THE DIRECTION SHOWN UNTIL BELT IS DEFLECTED 1/4". SPRING SCALE SHOULD READ AS FOLLOWS:
- | BELT # | SCALE READING | |
|---------|---------------|-----------|
| | POUNDS | GRAMS |
| 45189-5 | 4-5 | 1800-2200 |
| 45189-2 | 4-5 | 1800-2200 |
2. PEEL/TEAR OFF BAR - PLATEN GAP
PEELOFF BAR TO PLATEN GAP SHOULD BE SET TO .005 TO .015 MAX. GAP ALONG THE LENGTH OF THE PLATEN. GAP TO BE SET WITH A .004/.005 THICK BY 3" WIDE SHIM.
3. HEAD OPEN/CLOSED FLAG
WITH HEAD CLOSED, FLAG TO BE TIGHTENED IN POSITION AS SHOWN.

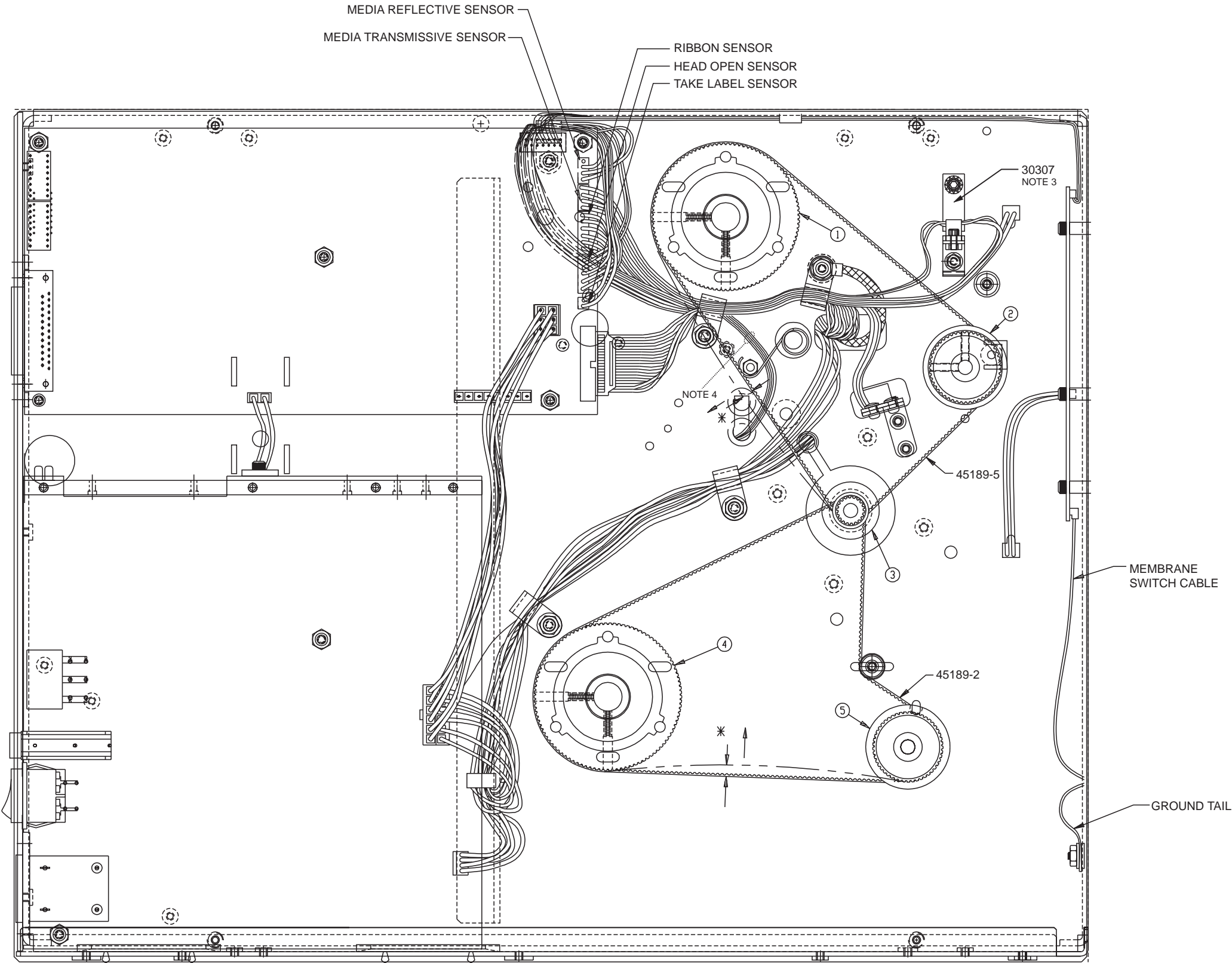
105S (12 Dot/mm) Final Assembly

PRINTER MODEL: 160S			
Final Assembly (Page 1 of 2)			
PART NUMBER		DESCRIPTION	QUANTITY
01130		Nut, 6-32	4
01152		Washer, Flat, .375 x .156 x .65	2
01155		Washer, Lock, #4	2
01159		Washer, External Lock, #6	4
01448		Screw, 6-32 .37	4
01912		Washer, External Lock, #4	4
07435		Screw, 6-32 .37	3
07696		Screw, 4-40, .31	2
09367		Stand-Off, 4-40	2
30240		Cover Plate with Opening (Serial)	1
30269		Pad, PVC 4.00 x .37 x .062	2
30391-004		Screw, 4-40 .25	2
30391-006		Screw, 4-40 .37	2
30392-004		Screw, 6-32 .25	19
30407-008		Screw, 6-32 .5	4
30916		Strap, Ground	1
31038		Panel, Left Side	1
31100M		Assembly, Membrane Switch, Front Panel	1
31240		Cover Plate with Opening (Parallel)	1
31517		Shield, High Voltage	1
31524M		Circuit Board, Front LED	1
35040		Door, Media Access	1
38019		Label, Logo	1
38020		Label, Logo	1
38037		Panel, Right Top	1
38039		Panel, Left Top	1
38102		Panel, Rear PCB, Serial	1
38103		Panel, Rear PCB, Parallel	1
38342		Bracket, Front Cover	1
38530M		Circuit Board, Serial Main Logic	1
38646M		Circuit Board, Power Supply	1
38691M		Circuit Board, Parallel Main Logic	1



T	01159
S	01912
R	
P	01155
N	
M	
L	01152
K	30391-006
J	30407-008
H	
G	30256
F	
E	01130
D	07435
C	01448
B	30391-004
A	30392-004
CODE	PART NUMBER
SCREW LIST	

PRINTER MODEL: 160S			
Final Assembly (Page 2 of 2)			
PART NUMBER		DESCRIPTION	QUANTITY
30307		Flag, Head Open	1
30336-1M		Pulley, Ribbon Take-Up	1
30336-2M		Pulley, Media Take-Up	1
30914M		Pulley, Peel-Off Platen (8 Dots/mm)	1
40355M		Pulley, Main Platen (8 Dots/mm)	1
40357M		Pulley, Stepper Motor (8 Dots/mm)	1
45189-2		Belt, Media Rewind	1
45189-5		Belt, Main Drive	1

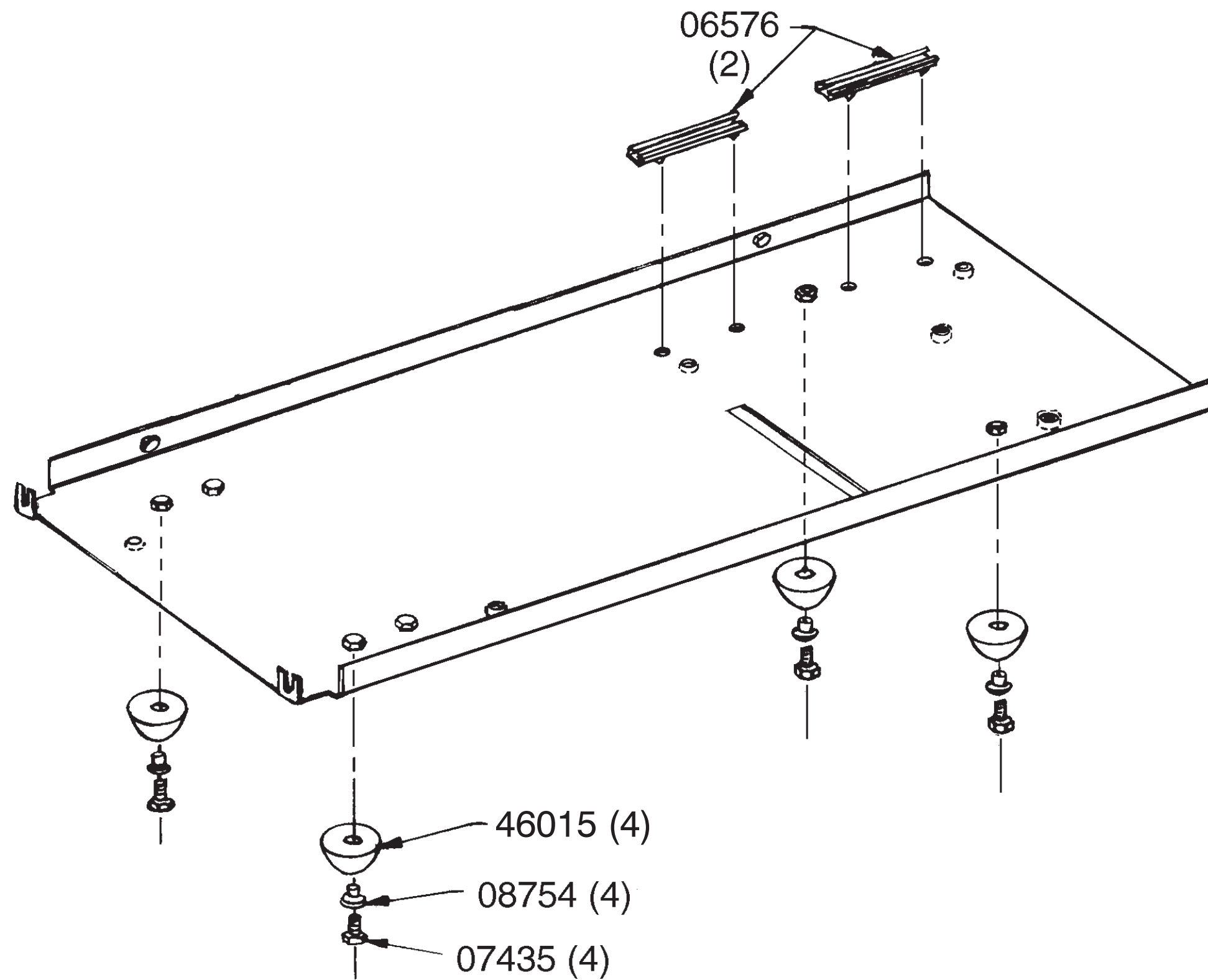


LOCATION	PULLEY	DIMENSIONS FROM MAIN-FRAME TO INSIDE GUIDING EDGE OF PULLEY
① RIBBON TAKEUP	30336-1M	FIXED IN SUB-ASSY
② MAIN PLATEN	40355M (8-DOT)	11 MM (.433 IN.)
③ STEPPER	40357M (8-DOT)	10 MM (.393 IN.)
④ MEDIA TAKEUP	30336-2M	FIXED IN SUB ASSY
⑤ PEELOFF	30914M (8-DOT)	8 MM (.315 IN.)

NOTE

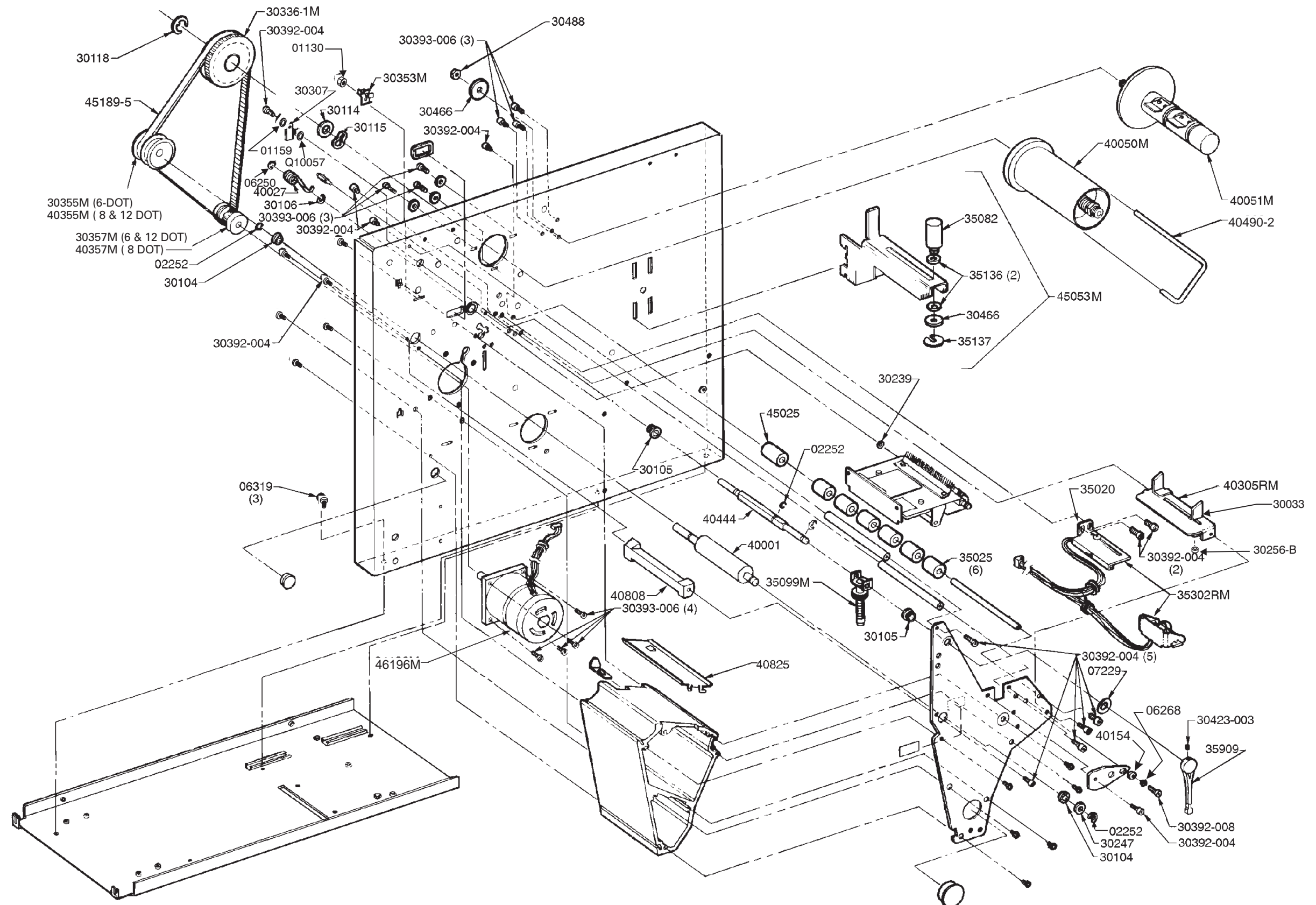
1. **BELT TENSION**
TO CHECK BELT TENSIONS, PULL ON BELTS WITH SPRING SCALE AT LOCATIONS SHOWN WITH "*" AND IN THE DIRECTION SHOWN UNTIL BELT IS DEFLECTED 1/4". SPRING SCALE SHOULD READ AS FOLLOWS:
- | BELT # | SCALE READING | |
|---------|---------------|-----------|
| | POUNDS | GRAMS |
| 45189-5 | 4-5 | 1800-2200 |
| 45189-2 | 4-5 | 1800-2200 |
2. **PEEL/TEAR OFF BAR - PLATEN GAP**
PEELOFF BAR TO PLATEN GAP SHOULD BE SET TO .005 TO .015 MAX. GAP ALONG THE LENGTH OF THE PLATEN. GAP TO BE SET WITH A .004/.005 THICK BY 3" WIDE SHIM.
3. **HEAD OPEN/CLOSED FLAG**
WITH HEAD CLOSED, FLAG TO BE TIGHTENED IN POSITION AS SHOWN.
4. **TRANSMISSIVE SENSOR POSITION**
WHEN EXTENDING THE MEDIA SENSOR POSITION TO THE OUTER HALF OF THE MEDIA WIDTH, REROUTE THIS CABLE TO PROVIDE SUFFICIENT SLACK FOR PULLING THROUGH THE MAIN FRAME.
- WHEN REPOSITIONING THE MEDIA SENSOR BACK TO THE INNER HALF OF THE MEDIA WIDTH, PULL THIS CABLE BACK THROUGH THE MAIN FRAME AND REROUTE THIS CABLE TO REMOVE ANY SLACK.
- IN BOTH CASES, POSITION CABLES AWAY FROM ALL BELTS AND PULLEYS.

PRINTER MODEL: 105S and 160S				
Base Assembly				
PART NUMBER		DESCRIPTION		QUANTITY
06576		Guide, PCB, Nylon		2
07435		Screw, 6-32, .37		4
08754		Eyelet, .183 x .157 x .187		4
46015		Bumper, Round, 1.09 x .62		4



PRINTER MODEL: 105S			
Print Mechanism Assembly			
PART NUMBER	DESCRIPTION	QUANTITY	
01130	Nut, 6-32	1	
01159	Washer, Extended Lock, #6	1	
02252	Ring, Crescent, .250	3	
06250	E-Ring, External, .312	1	
06268	Washer, Lock, #6	1	
06319	Screw, 10-32 .37	1	
07229	Washer, Curved, .49 x .33 x .0075	1	
30033	Media Guide, Adjustable	1	
30104	Flange, Ball Bearing, .5 x .250 x .125	2	
30105	Bearing, Nylon, .312 x .251 x .078	2	
30106	Ring, Crescent, External, .312	1	
30114	Washer, Flat, .76 x .51 x .03	1	
30115	Washer, Wave, .740 x .520 x .080	1	
30118	Ring, "E", External, .500 x .042	1	
30239	Washer, Crescent, .415 x .323 x .062	1	
30247	Washer, Flat, .42 x .260 x .0747	1	
30256-B	Nut, Thumb	1	
30307	Flag, Head Open	1	
30336-1M	Assembly, Ribbon Take-Up Pulley	1	
30353M	Assembly, Head Open Sensor	1	
30355M	Assembly, Platen Pulley (6 Dots/mm)	1	
30357M	Assembly, Stepper Motor Pulley (6 Dots/mm and 12 Dots/mm)	1	
30392-004	Screw, 6-32 .25	12	
30392-008	Screw, 6-32 .50	1	
30393-006	Screw, 8-32 .37	10	
30423-003	Screw, Set, 8-32 .187	1	
30466	Washer, .26 x .63 x .06	2	
30488	Nut, 1/4-20	1	
35020	Bracket, Media Sensor	1	
35025	Roller Segment	6	
35082	Guide, Media	1	
35099M	Assembly, Toggle	1	
35136	Washer, Nylon, .252 x .472 x .059	2	
35137	Ring, Retainer, .250	1	
35302RM	Assembly, Media Sensor	1	
35909	Handle, Printhead	1	

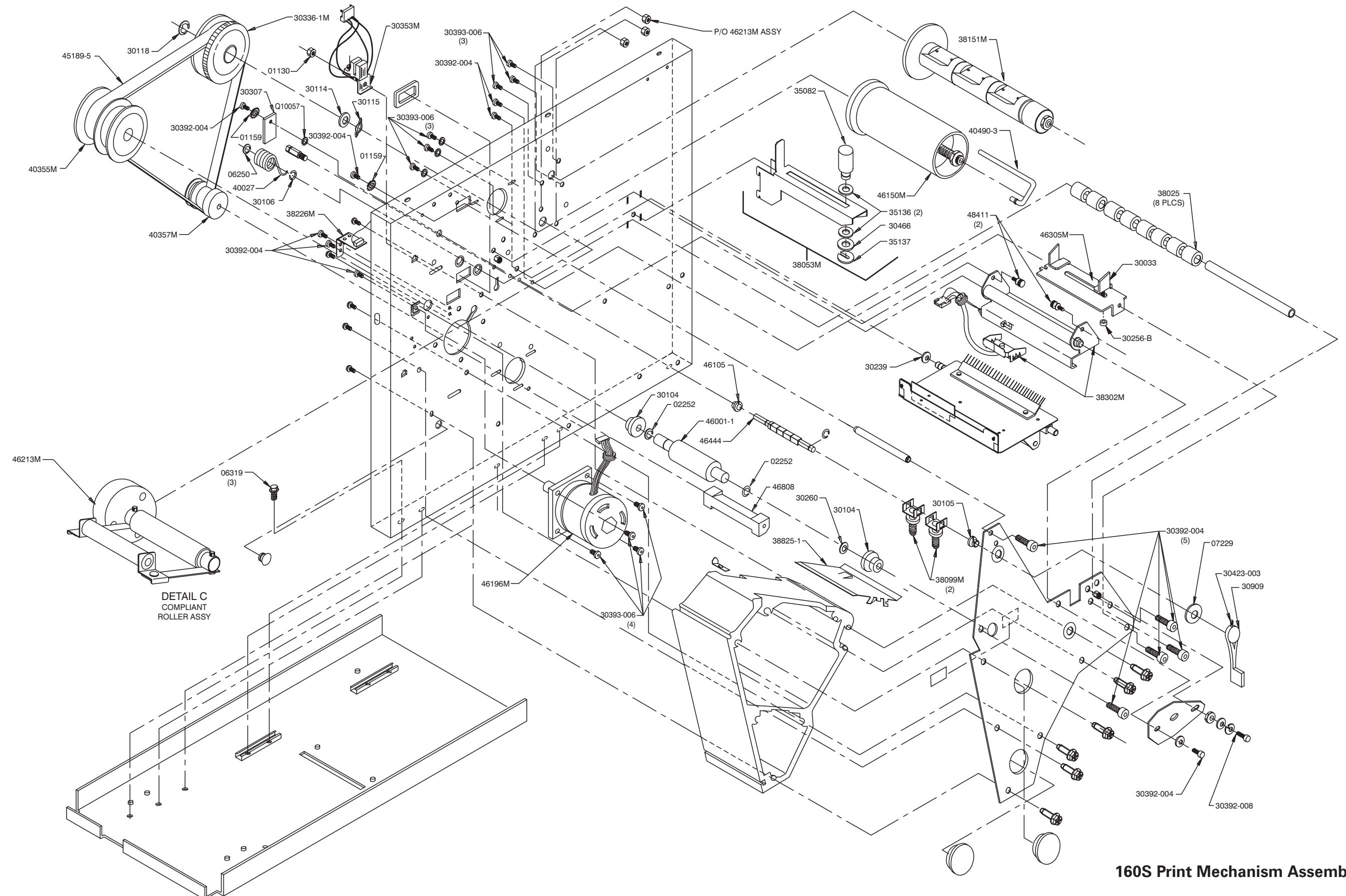
PRINTER MODEL: 105S			
Print Mechanism Assembly			
PART NUMBER	DESCRIPTION	QUANTITY	
40001	Roller, Main Platen	1	
40027	Spring, Torsion	1	
40050M	Spindle Assembly, Ribbon Take-Up	1	
40051M	Spindle Assembly, Ribbon Supply	1	
40154	Pin, Eccentric	1	
40305RM	Assembly, Media Guide	1	
40355M	Assembly, Platen Pulley (8 Dots/mm and 12 Dots/mm)	1	
40357M	Assembly, Stepper Motor Pulley (8 Dots/mm)	1	
40444	Shaft, Pivot	1	
40490-2	Ribbon Take-Up Hook	1	
40808	Tear/Peel-Off Bar	1	
40825	Guide Plate, Upper Media (Snap Plate)	1	
45025	Roller, White Nylon, .62 .18	1	
45053M	Hanger Assembly, Media Supply	1	
45189-5	Belt, Main Drive	1	
46196M	Motor, Stepper	1	
46904	Assembly, Reflective Sensor (optional)	1	
Q10057	Washer, Flat, .372 x .158 x .032	1	



105S Print Mechanism Assembly

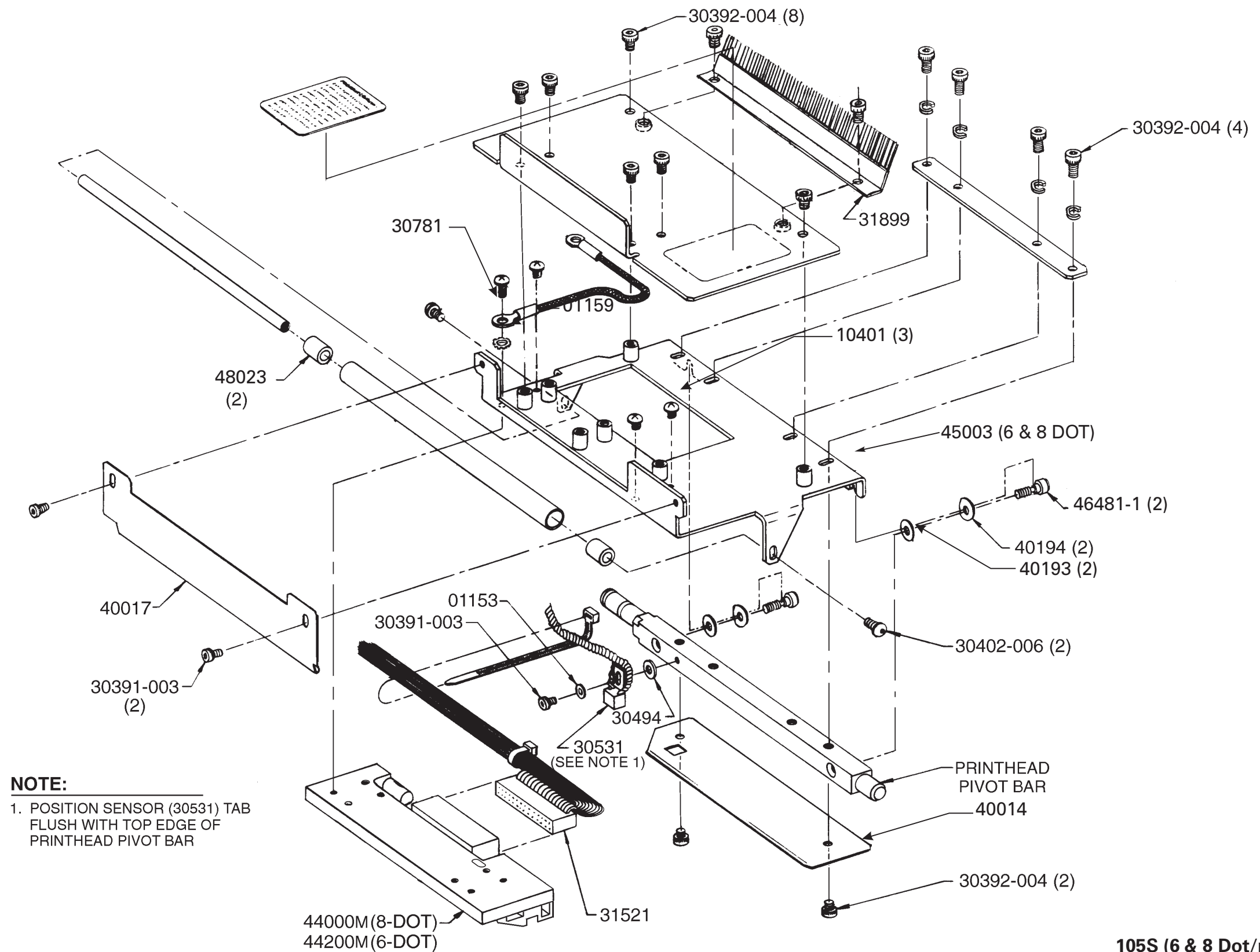
PRINTER MODEL: 160S			
Print Mechanism Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
01130		Nut, 6-32	1
01159		Washer, External Lock, #6	1
02252		Ring, Crescent, .250	3
06250		Ring, "E" External, .312	1
06319		Screw, 10-32 .37	3
07229		Washer, Curved, .49 x .33 x .0075	1
30033		Media Guide, Adjustable	1
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30105		Bearing, Nylon, .312 x .251 x .078	1
30106		Ring, Crescent, External, .312	1
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Wave, .740 x .520 x .080	1
30118		Ring, "E", External, .500 x .042	1
30176		Plate, Media Supply (Supply Spindle Option)	1
30239		Washer, Crescent, .415 x .323 x .062	1
30256-B		Nut, Thumb	1
30260		Washer, Crescent, .406 x .253 x .030	1
30307		Flag, Head Open	1
30336-1M		Assembly, Ribbon Take-Up Pulley	1
30353M		Assembly, Head Open Sensor	1
30392-004		Screw, 6-32 .25	10
30392-008		Screw, 6-32 .50	1
30393-006		Screw, 8-32 .37	10
30423-003		Screw, Set, 8-32 .187	1
30488		Nut 1/4-20 (Supply Spindle Option)	1
30909		Handle, Printhead	1
35082		Guide, Media	1
35136		Washer, Nylon, .252 x .472 x .059	2
35137		Ring, Retainer, .250	1
38025		Roller Segment	8
38053M		Hanger Assembly, Media Supply	1
38099M		Assembly, Toggle	2
38151M		Spindle Assembly, Ribbon Supply	1
38226M		Assembly, Reflective Sensor (optional)	1
38302M		Assembly, Media Sensor	1
38825-1		Guide Plate, Upper Media (Snap Plate)	1

PRINTER MODEL: 160S			
Print Mechanism Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
40027		Spring, Torsion	1
40355M		Assembly, Platen Pulley (8 Dots/mm)	1
40357M		Assembly, Stepper Motor Pulley (8 Dots/mm)	1
40490-3		Ribbon Take-Up Hook	1
45189-5		Belt, Main Drive	1
46001-1		Roller, Main Platen	1
46105		Bearing, Nylon	1
46150M		Spindle Assembly, Ribbon Take-Up	1
46196M		Motor, Stepper	1
46213M		Assembly, Compliance	1
46305M		Assembly, Media Guide	1
46444		Shaft, Pivot	1
46808		Peel/Tear-Off Bar	1
48411		Screw, Thumb	2
Q10057		Washer, Flat, .372 x .158 x .032	1



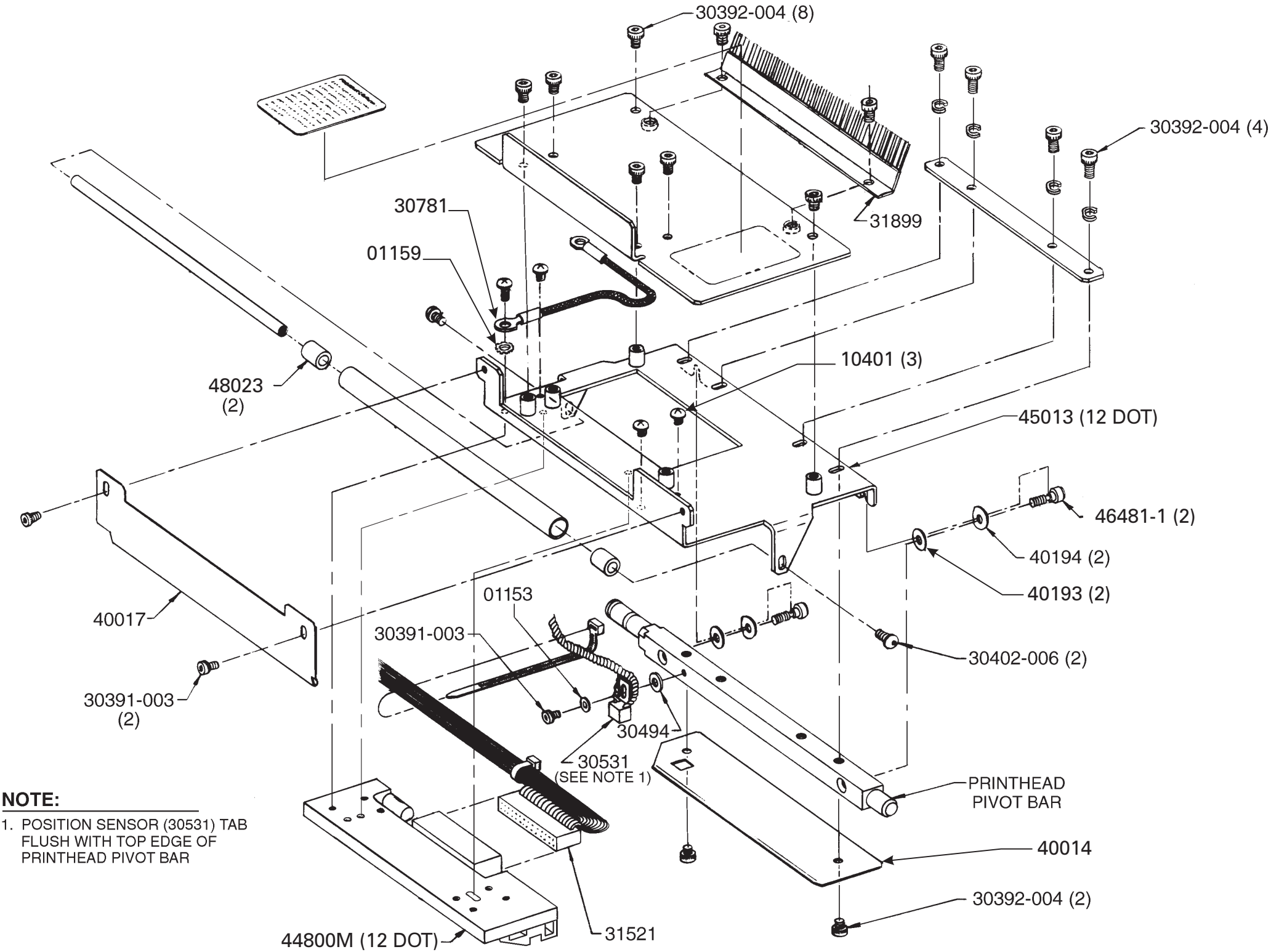
160S Print Mechanism Assembly

PRINTER MODEL: 105S (6 dot and 8 dot)			
Printhead Support Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
01153		Washer, Flat, .250 x .125 x .028	1
01159		Washer, Lock, #6	1
10401		Screw, M3 x .5 x 4	3
30391-003		Screw, 4-40 .19	3
30392-004		Screw, 6-32 .25	14
30402-006		Screw, 6-32 .37	2
30494		Washer, .320 x .119 x .062	1
30531		Assembly, Ribbon Sensor	1
30781		Cable, Printhead, Ground	1
31521		Assembly, Printhead Cable	1
31899		Brush, Static Removal	1
40014		Plate, Guide	1
40017		Plate, Ribbon Strip	1
40193		Washer, Felt, .406 x .172 x .048	2
40194		Washer, Curved, .312 x .144 x .016	2
44000M		Printhead (8 Dots/mm)	1
44200M		Printhead (6 Dots/mm)	1
46481-1		Screw, Adjustment, 6-32	2
48023		Bearing, .313 x .190 x .375	2



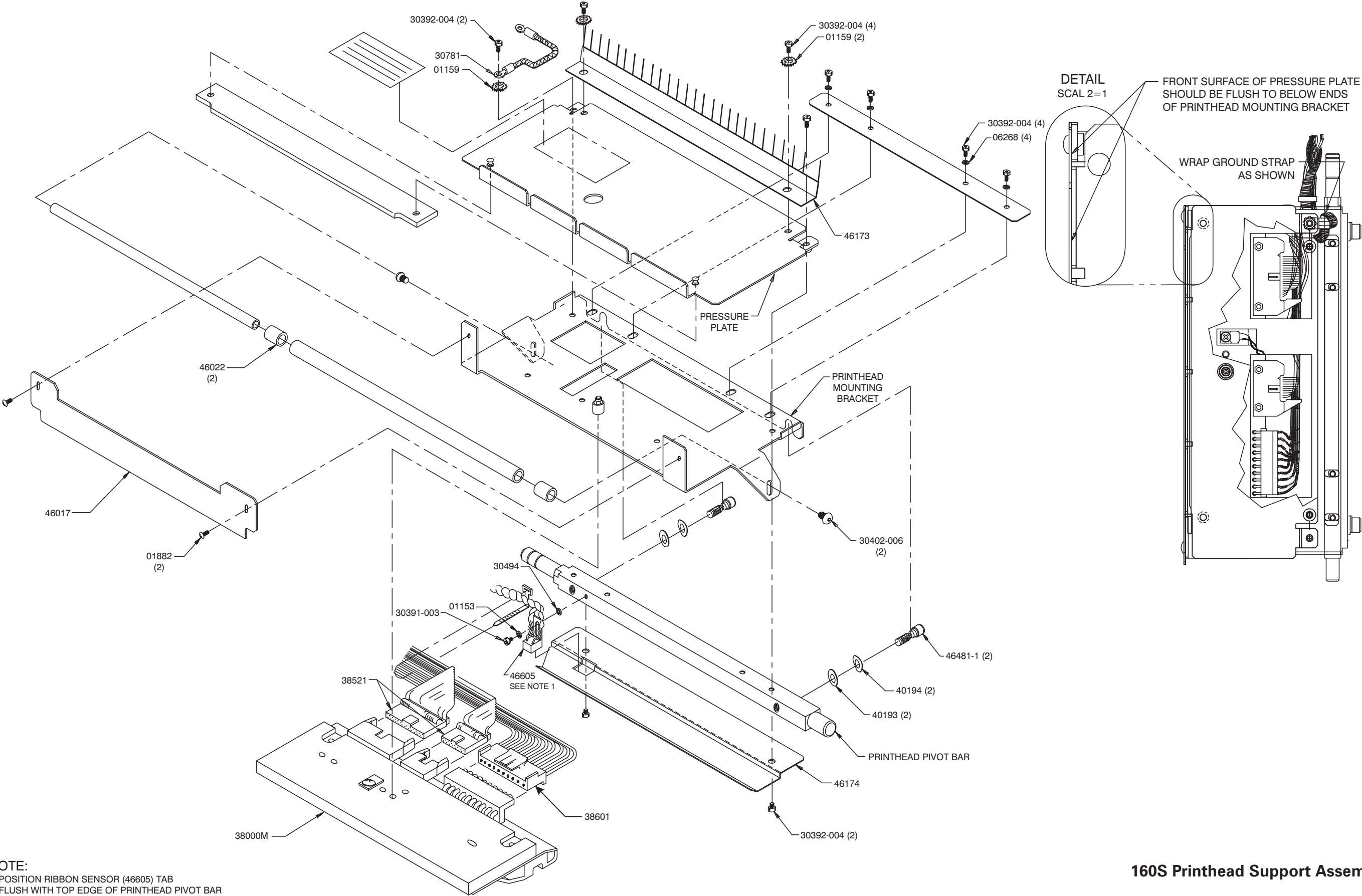
**105S (6 & 8 Dot/mm)
Printhead Support Assembly**

PRINTER MODEL: 105S (12 dot)			
Printhead Support Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
01153		Washer, Flat, .250 x .125 x .028	1
01159		Washer, Lock, #6	1
30391-003		Screw, 4-40 .19	3
30392-004		Screw, 6-32 .25	14
30402-006		Screw, 6-32 .37	2
30494		Washer, .320 x .119 x .062	1
30531		Assembly, Ribbon Sensor	1
30781		Cable, Printhead, Ground	1
31521		Assembly, Printhead Cable	1
31899		Brush, Static Removal	1
40014		Plate, Guide	1
40017		Plate, Ribbon Strip	1
40193		Washer, Felt, .406 x .172 x .048	2
40194		Washer, Curved, .312 x .144 x .016	2
44800M		Printhead (12 Dots/mm)	1
45013		Bracket	1
46481-1		Screw, Adjustment, 6-32	2
48023		Bearing, .313 x .190 x .375	2



**105S (12 Dot/mm)
Printhead Support Assembly**

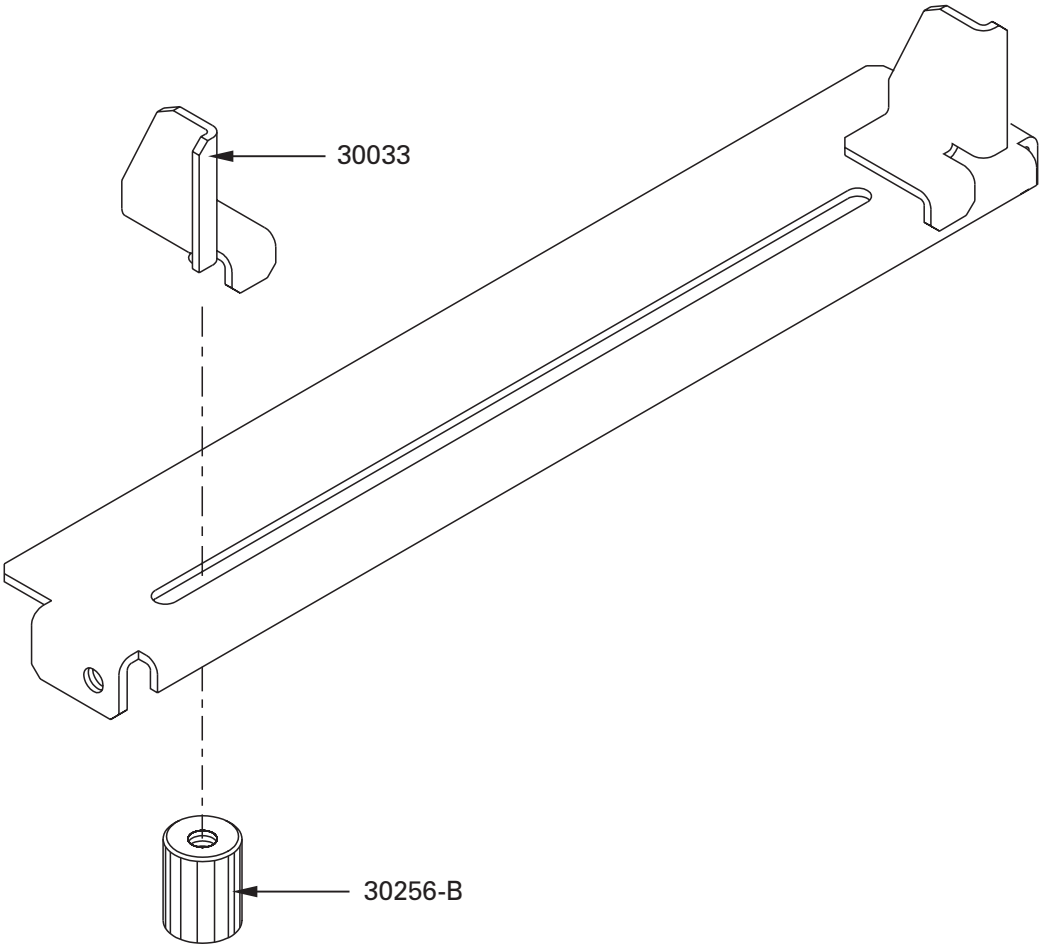
PRINTER MODEL: 160S			
Printhead Support Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
01153		Washer, Flat, .250 x .125 x .028	1
01159		Washer, #6 Lock	2
01882		Screw, 4-40 .25	2
06268		Washer, #6 Split Lock	4
30344		Assembly, Clutch Plate and Bearing	1
30391-003		Screw, 4-40 .19	1
30392-004		Screw, 6-32 .25	12
30402-006		Screw, 6-32 .37	2
30494		Washer, .320 x .119 x .062	1
30781		Cable, Printhead Ground	1
38000M		Printhead (8 Dots/mm)	1
38521		Assembly, Printhead Cable	1
38601		Assembly, Printhead Cable, Power	1
40193		Washer, Flat .406 x .172 x .048	2
40194		Washer, Curved, .312 x .144 x .016	2
46017		Plate, Ribbon Strip	1
46022		Bearing, Rulon, .313 x .191 x .375	2
46173		Brush, Static Removal	1
46174		Plate, Guard	1
46481-1		Screw, Adjustment, 6-32	2
46605		Assembly, Ribbon Sensor	1



NOTE:
1. POSITION RIBBON SENSOR (46605) TAB
FLUSH WITH TOP EDGE OF PRINTHEAD PIVOT BAR

160S Printhead Support Assembly

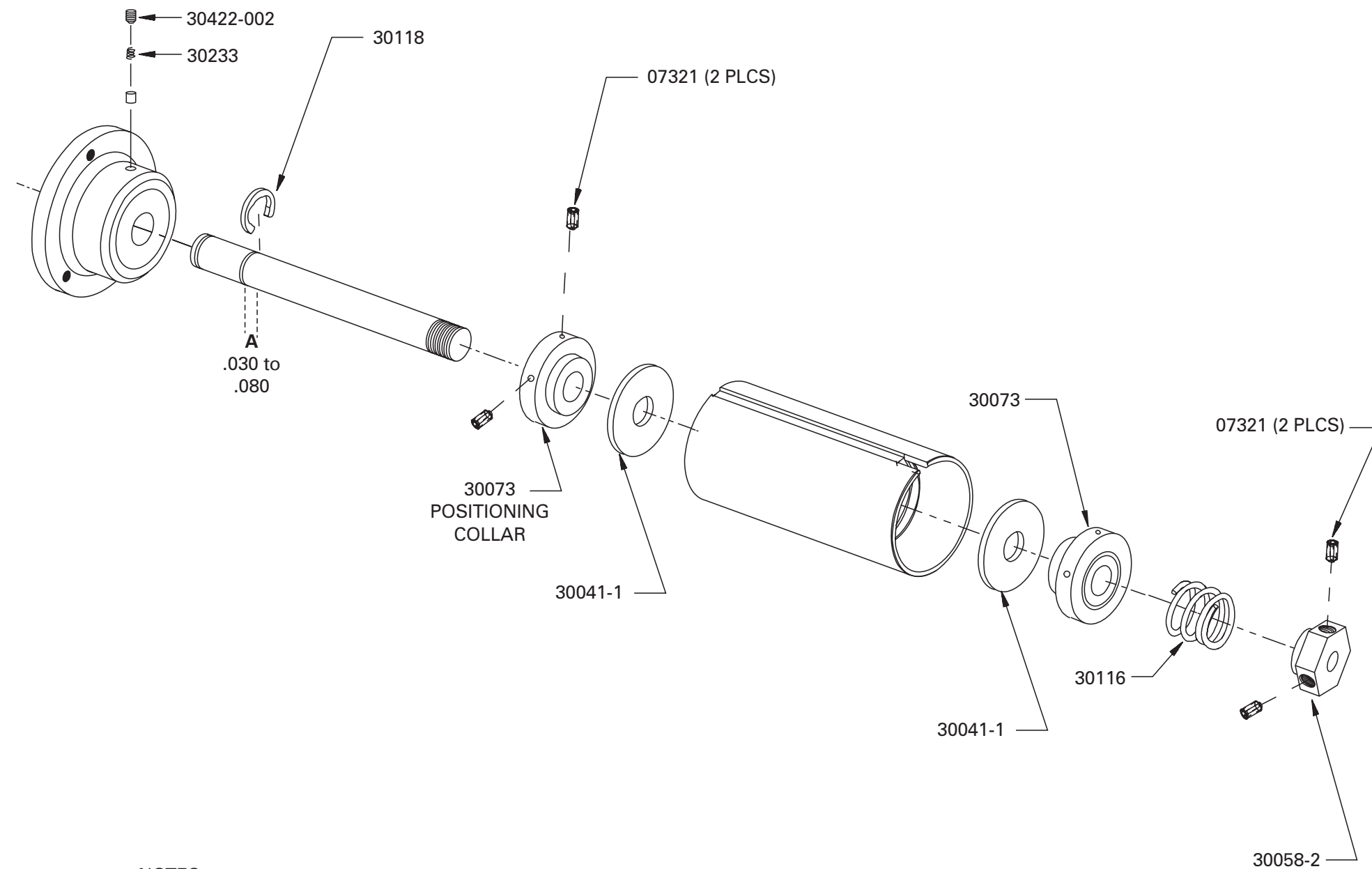
PRINTER MODEL: 105S and 160S				
Media Guide Assembly				
PART NUMBER		DESCRIPTION		QUANTITY
30033		Guide, Adjustable Media		1
30256-B		Nut, Thumb, 6-32 .50 Brass		1



PRINTER MODEL: 105S			
Ribbon Supply Spindle Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
07321		Screw, Set, 6-32 .18	2
30041-4		Washer, Felt, 29/32, 1/2, 3/32	1
30041-6		Washer, Felt, 13/16, 13/32, 3/32	1
30042		Spring, Torsion, .739 x .805	1
30071		Housing, Ribbon Supply Spring	1
30097		Spring, Compression, .660 x .528 x .066	1
30145		Bearing, Thrust	2
30146		Washer, Thrust, .687 x .375 x .093	4
30224		Ring, Crescent, Ext. .375	2
30344M		Clutch Plate Bearing Maintenance Assembly	1
40070-1		Blade, Ribbon Supply, Outer	1
40070-2		Blade, Ribbon Supply, Inner	1

PRINTER MODEL: 160S			
Ribbon Supply Spindle Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
30042		Spring, Torsion, .739 x .805	1
30145		Bearing, Thrust	2
30146		Washer, Thrust, .687 x .375 x .093	4
40070-1		Blade, Ribbon Supply, Outer	2
40070-2		Blade, Ribbon Supply, Inner	1
46085		Nut, Jam, 3/8 24	1
46211		Spring, Compression, .53 x .660 x .62	1
47005		Nut,Jam, 3/8 24	1
47171		Housing, Ribbon Supply Spring	1

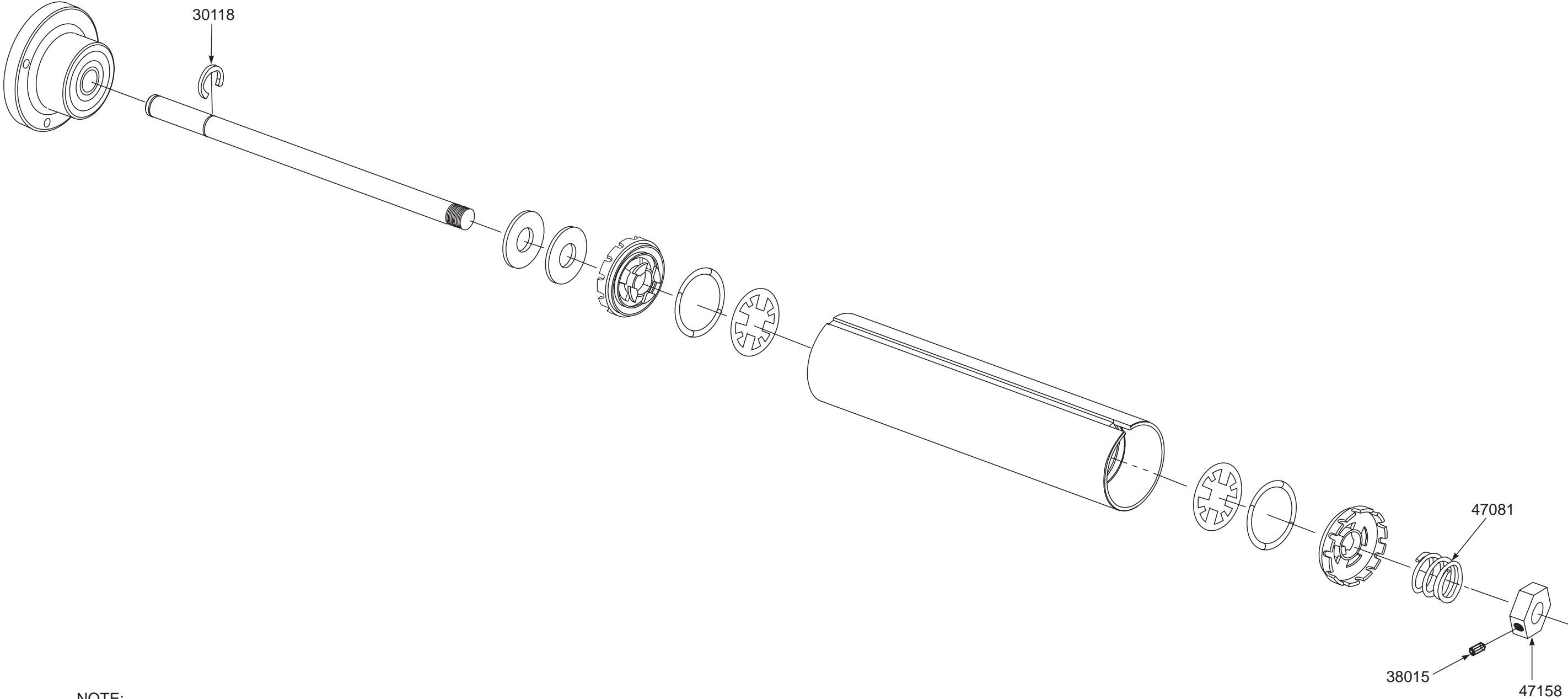
PRINTER MODEL: 105S			
Ribbon Take-Up Spindle Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
07321		Screw, Set, 6-32 .18	4
30073		Collar	2
30041-1		Washer, Felt, 1 1/4, 19/32, 3/32	2
30058-2		Nut, Shoulder, .50-20, Hex	1
30116		Spring, Compression, .720 x .610 x .625	1
30118		E-Ring, Ext. .500 x .042	1
30233		Spring, Compression, .088 x .012 x .312	1
30422-002		Screw, Set, 6-32, .375	1



NOTES:

- 1) SOAK FELT WASHERS 30041-1 IN SILICONE OIL & SQUEEZE OUT.
- (2) ASSEMBLY IS POSITIONED VIA POSITIONING COLLAR & SET SCREWS AS SHOWN IN "A" - .030 TO .080 FROM EDGE OF 30118.

PRINTER MODEL: 160S				
Ribbon Take-Up Spindle Assembly				
PART NUMBER		DESCRIPTION		QUANTITY
30118		E-Ring, Ext. .500 x .042		1
38015		Screw, Set, #10-24 .187		1
38210		Spring, Compression, .56 x .720 x 1.0		1
47158		Nut, .50 .75		1

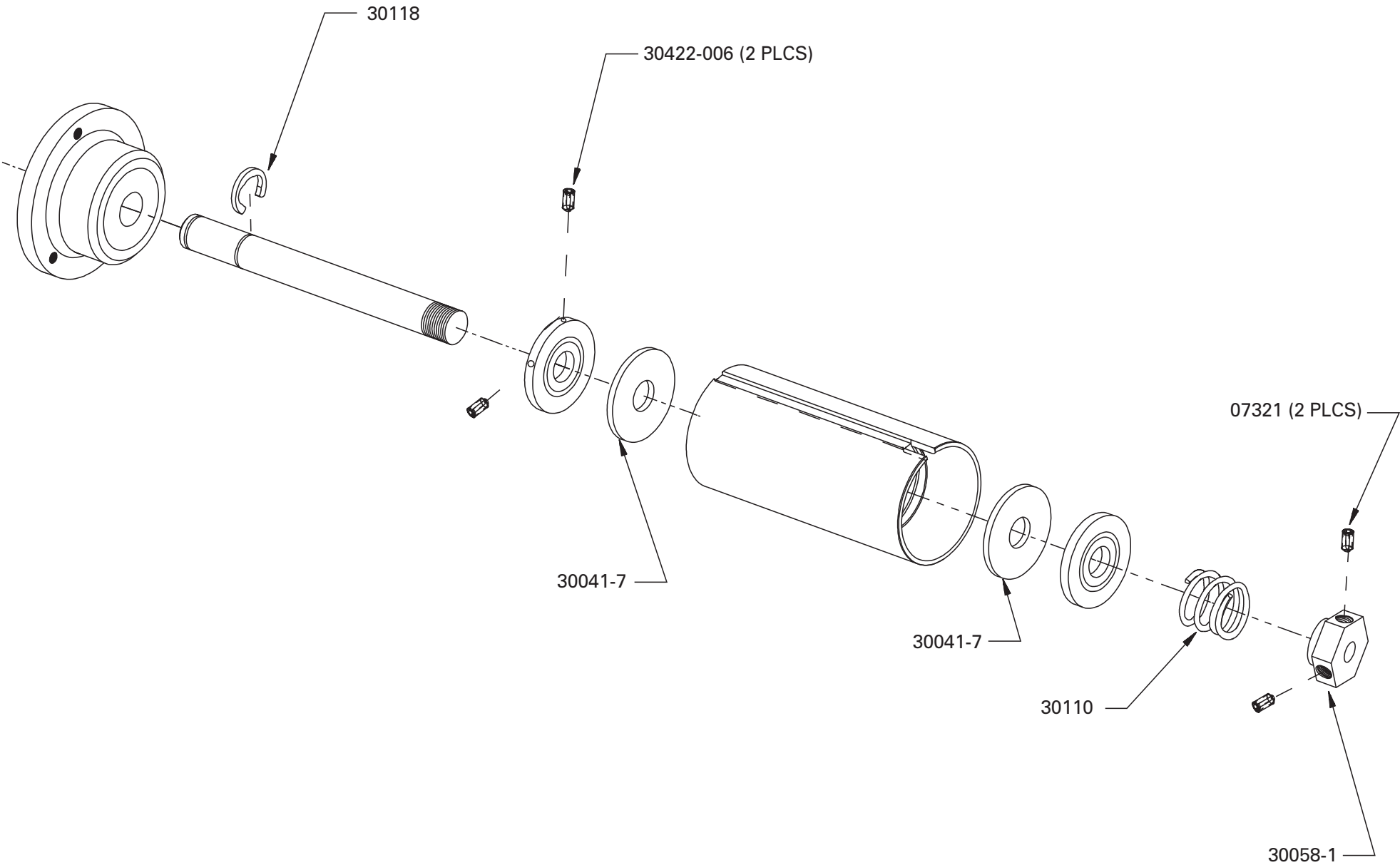


NOTE:

1. O-RINGS, WEAR PLATES AND FRICTION CLUTCHES MUST BE HANDLED WITH CARE TO PREVENT OIL OR GREASE CONTAMINATION.

160S Ribbon Takeup Spindle Assembly

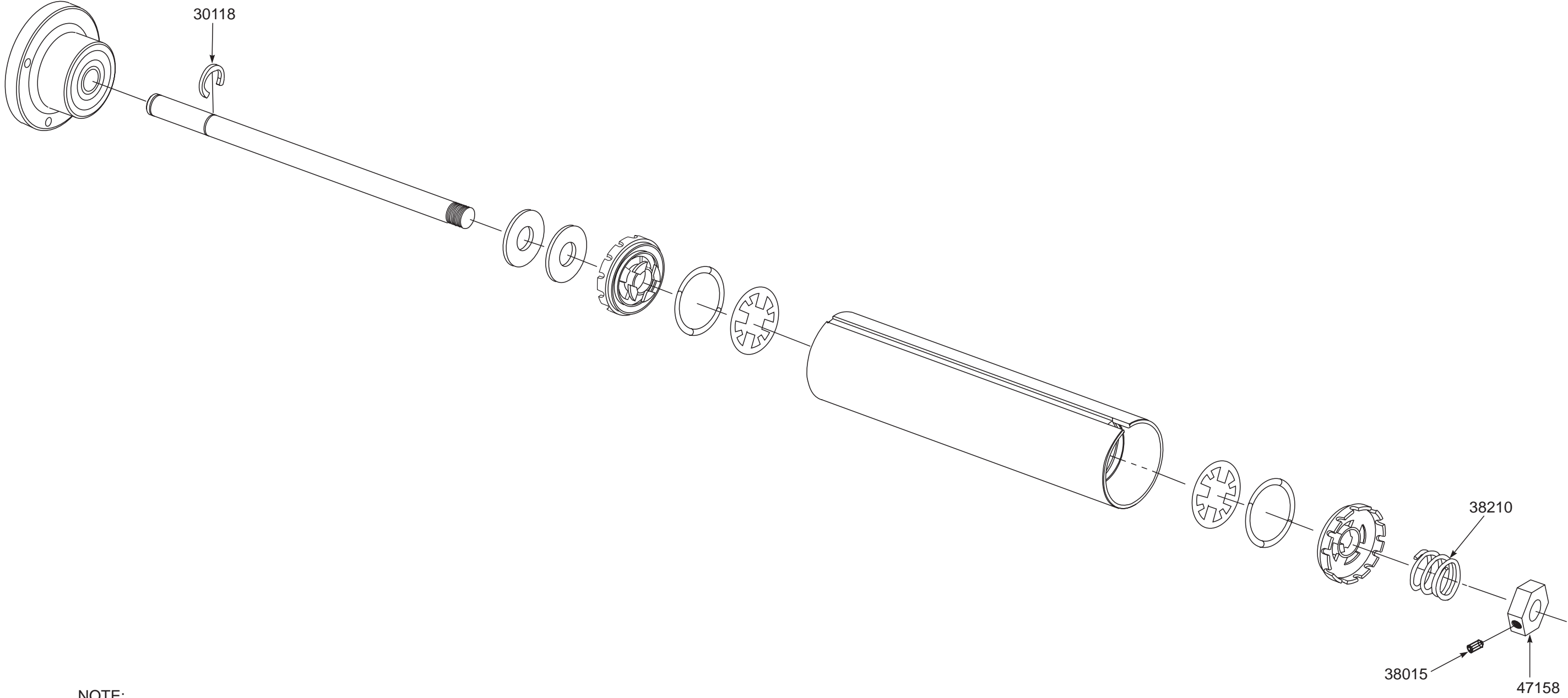
PRINTER MODEL: 105S			
Peel-Off Rewind Spindle Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
07321		Screw, Set, 6-32 .18	2
30041-7		Washer, Felt, 1 5/8, 17/32, .093	2
30058-1		Nut, Shoulder, .50-20, Hex	1
30110		Spring, Compression, .85 x .67 x 1.12	1
30118		E-Ring, Ext. .500 x .042	1
30422-006		Screw, Set, 6-32, .375	2



NOTES:

- 1) SOAK FELT WASHERS 30041-7 IN SILICONE OIL & SQUEEZE OUT.

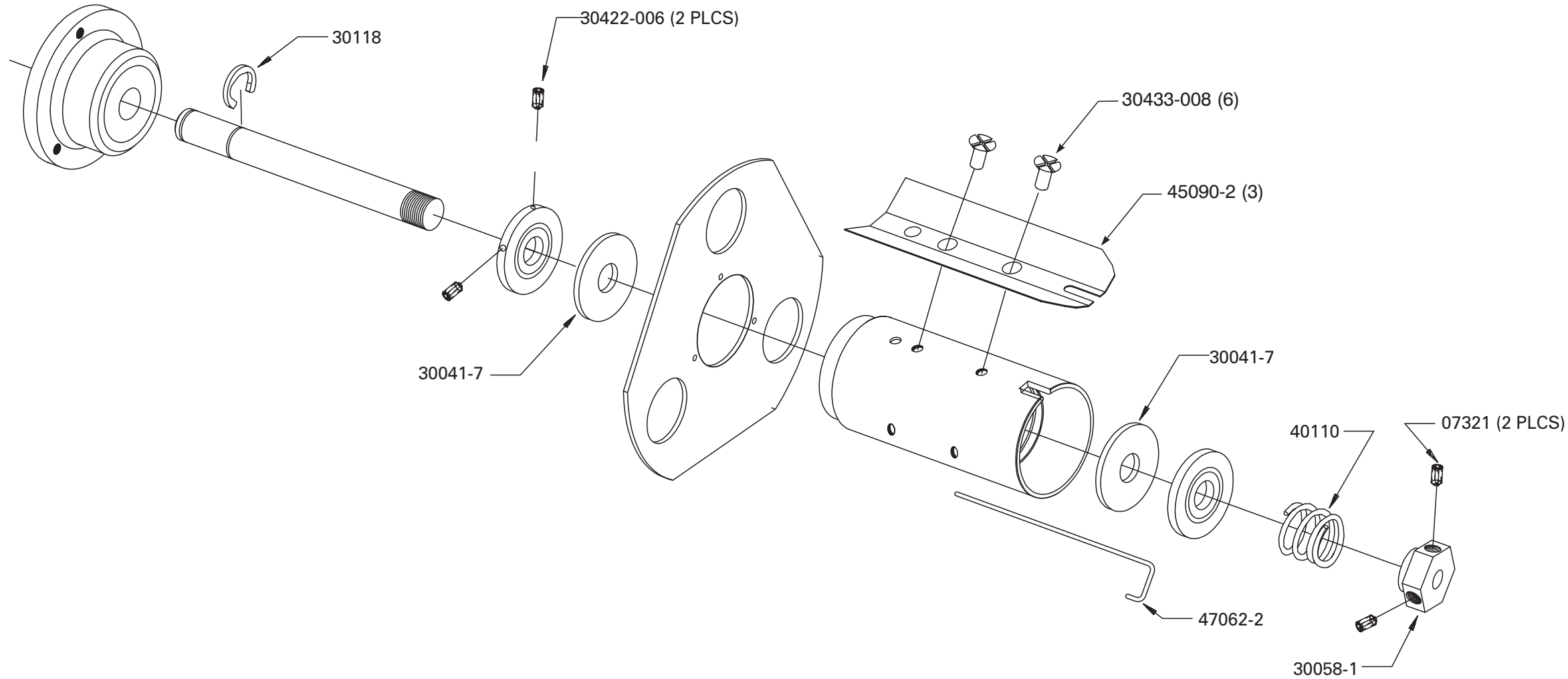
PRINTER MODEL: 160S				
Peel-Off Rewind Spindle Assembly				
PART NUMBER		DESCRIPTION		QUANTITY
30118		E-Ring, Ext. .500 x .042		1
38015		Screw, Set, #10-24 .187		1
38210		Spring, Compression, .56 x .720 x 1.0		1
47158		Nut, .50 .75		1



NOTE:
1. O-RINGS, WEAR PLATES AND FRICTION CLUTCHES MUST BE
HANDLED WITH CARE TO PREVENT OIL OR GREASE CONTAMINATION.

160S Peel-Off Rewind Spindle Assembly

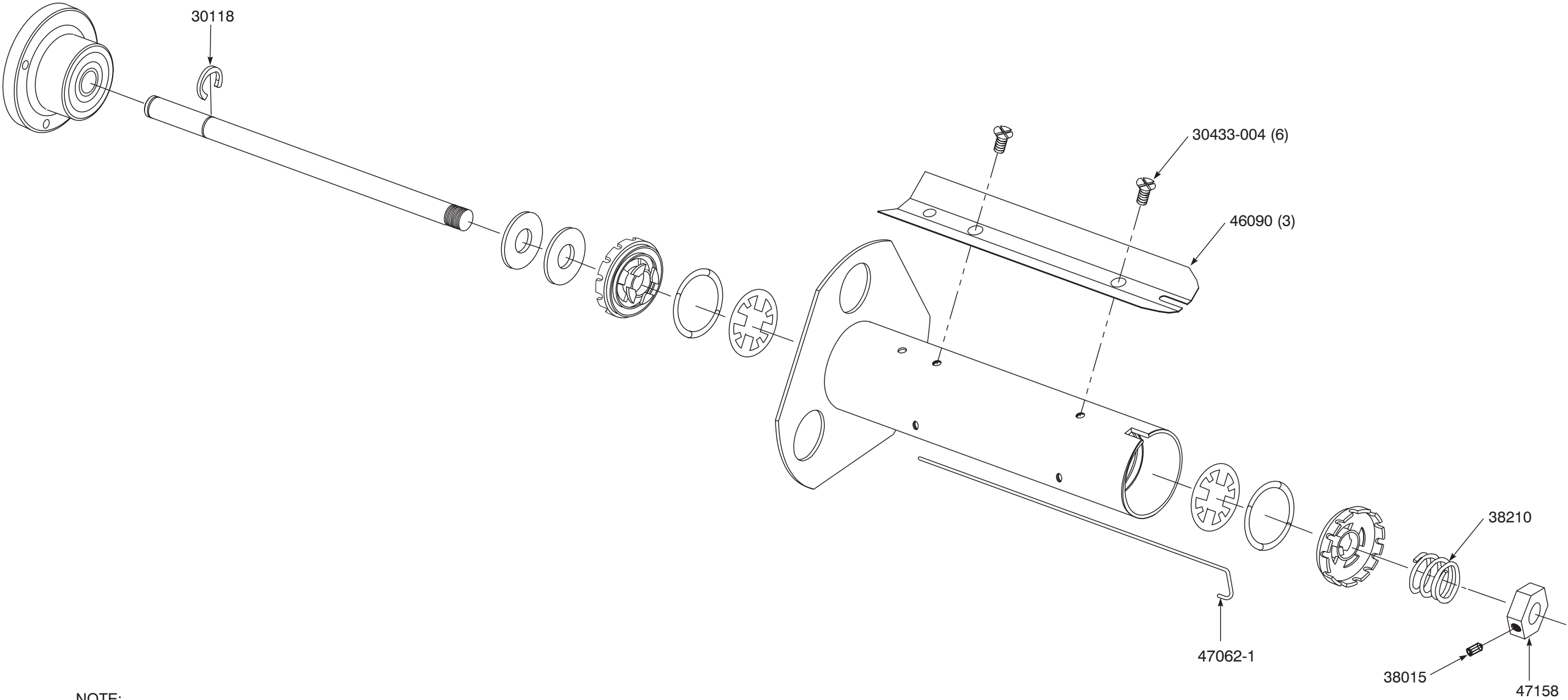
PRINTER MODEL: 105S			
Media Rewind Spindle Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
07321		Screw, Set, 6-32 .18	2
30041-7		Washer, Felt, 1 5/8, 17/32, .093	2
30433-008		Screw, 8-32 .500	6
30058-1		Nut, Shoulder, .50-20, Hex	1
30118		E-Ring, Ext. .500 x .042	1
30422-006		Screw, Set, 6-32, .375	2
40110		Spring, Compression, .85 x .67 x 1.12	1
45090-2		Blade, Media Take-Up	3
47062-2		Hook, Rewind	1



NOTES:

- 1) SOAK FELT WASHERS 30041-7 IN SILICONE OIL & SQUEEZE OUT.

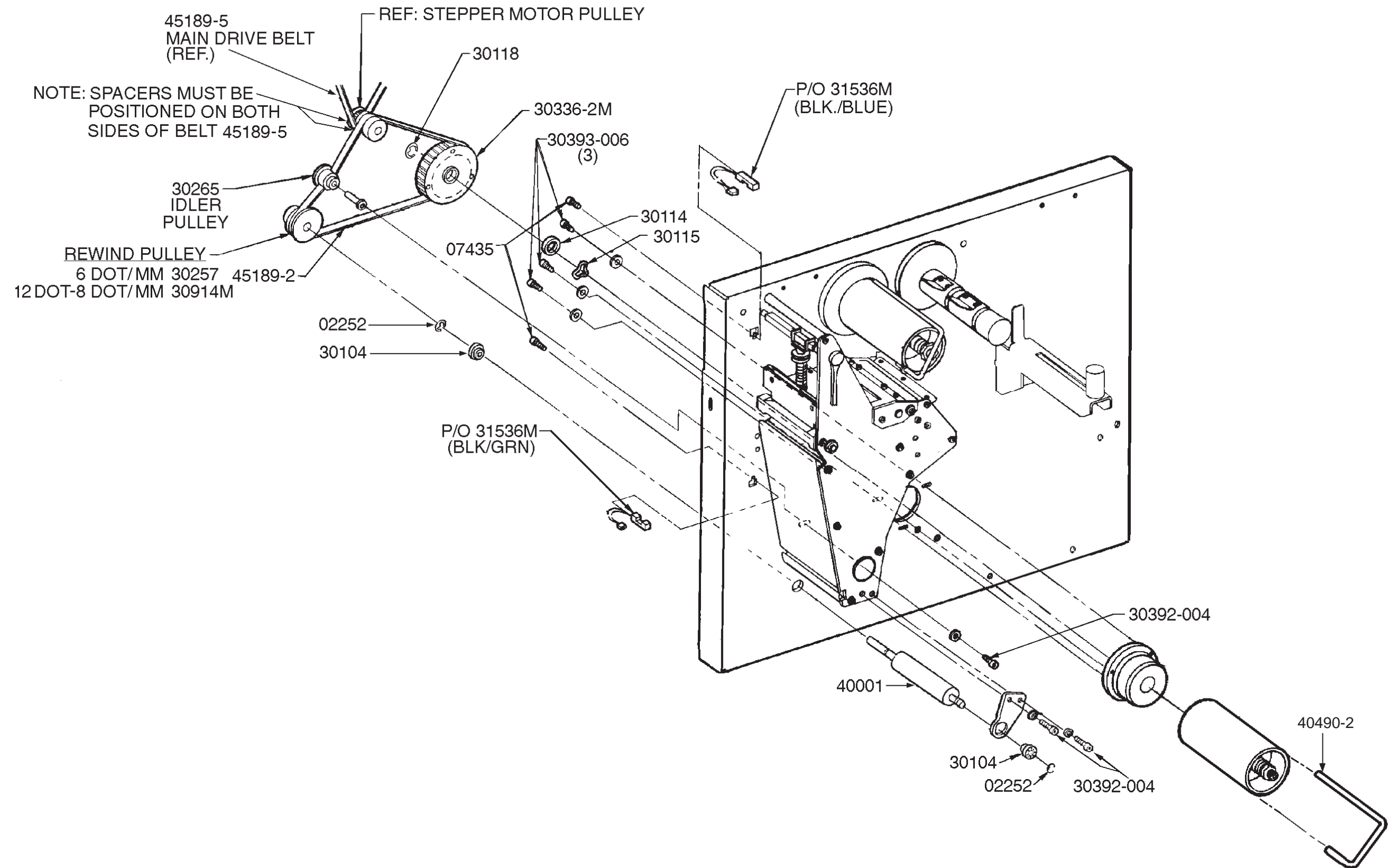
PRINTER MODEL: 160S			
Media Rewind Spindle Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
30118		E-Ring, Ext. .500 x .042	1
30433-004		Screw, 8-32 .250	6
38015		Screw, Set, #10-24 .187	1
38210		Spring, Compression, .56 x .720 x 1.0	1
46090		Blade, Media Take-Up	3
47062-1		Hook, Rewind	1
47158		Nut, .50 .75	1



NOTE:
1. O-RINGS, WEAR PLATES AND FRICTION CLUTCHES MUST BE
HANDLED WITH CARE TO PREVENT OIL OR GREASE CONTAMINATION.

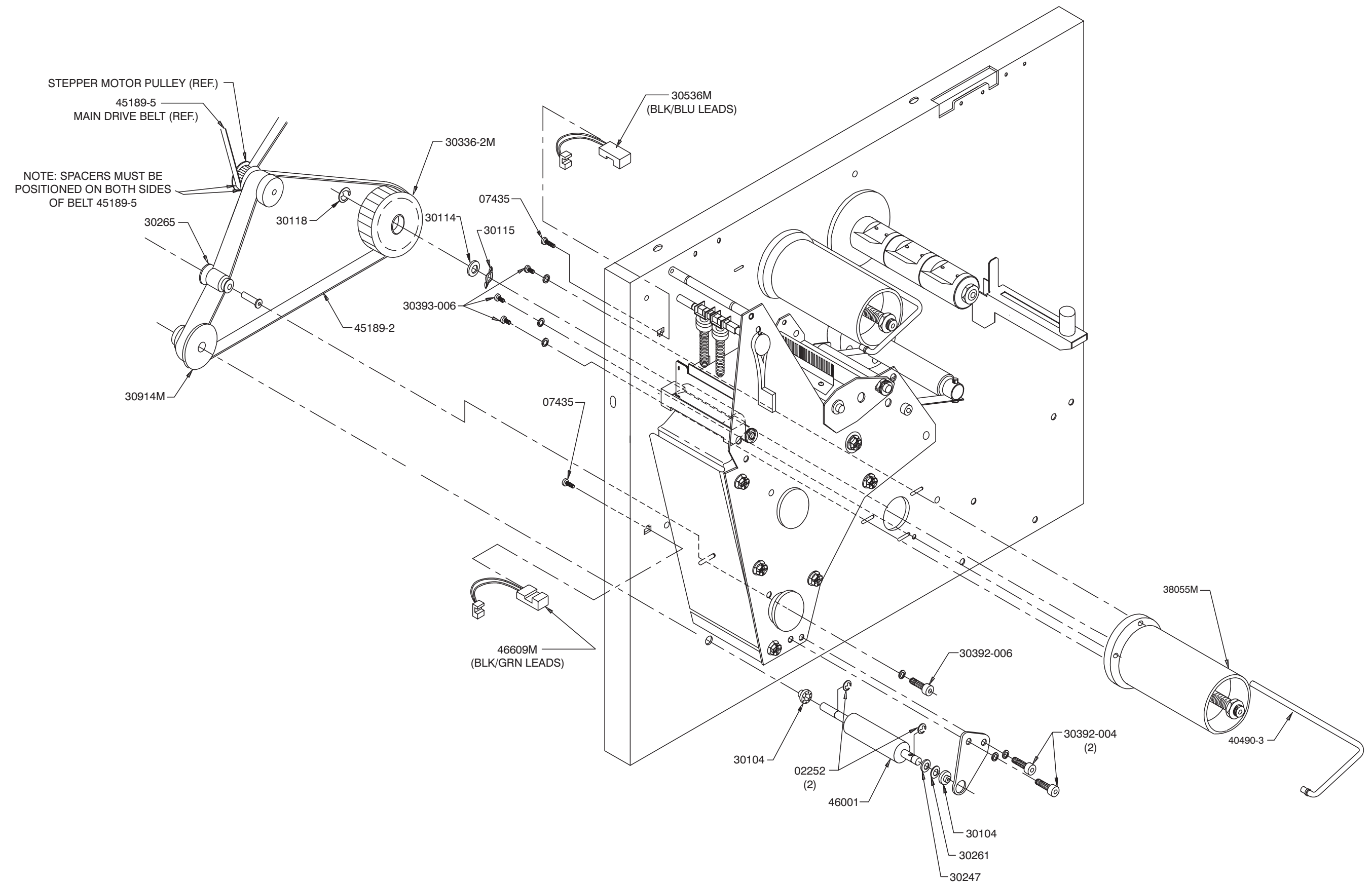
160S Media Rewind Spindle Assembly

PRINTER MODEL: 105S			
Peel-Off Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
02252		Ring, Crescent, .250	2
07435		Screw, 6-32 .37	2
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Save, .740 x .520 x .08	1
30118		Ring, "E", External, .500 x .042	1
30257		Pulley Assembly, Rewind (6 Dots/mm)	1
30265		Pulley, Idler	1
30336-2M		Pulley Assembly, Media Rewind	1
30392-004		Screw, 6-32 .25	3
30393-006		Screw, 8-32 .37	3
30914M		Pulley Assembly, Rewind (8 Dots/mm and 12 Dots/mm)	1
31536M		Sensor Assembly, Take-Label	1
40001		Shaft, Platen	1
40490-2		"L" Hook, Ribbon Assembly, 6 inches	1
45189-2		Belt, Rewind	1



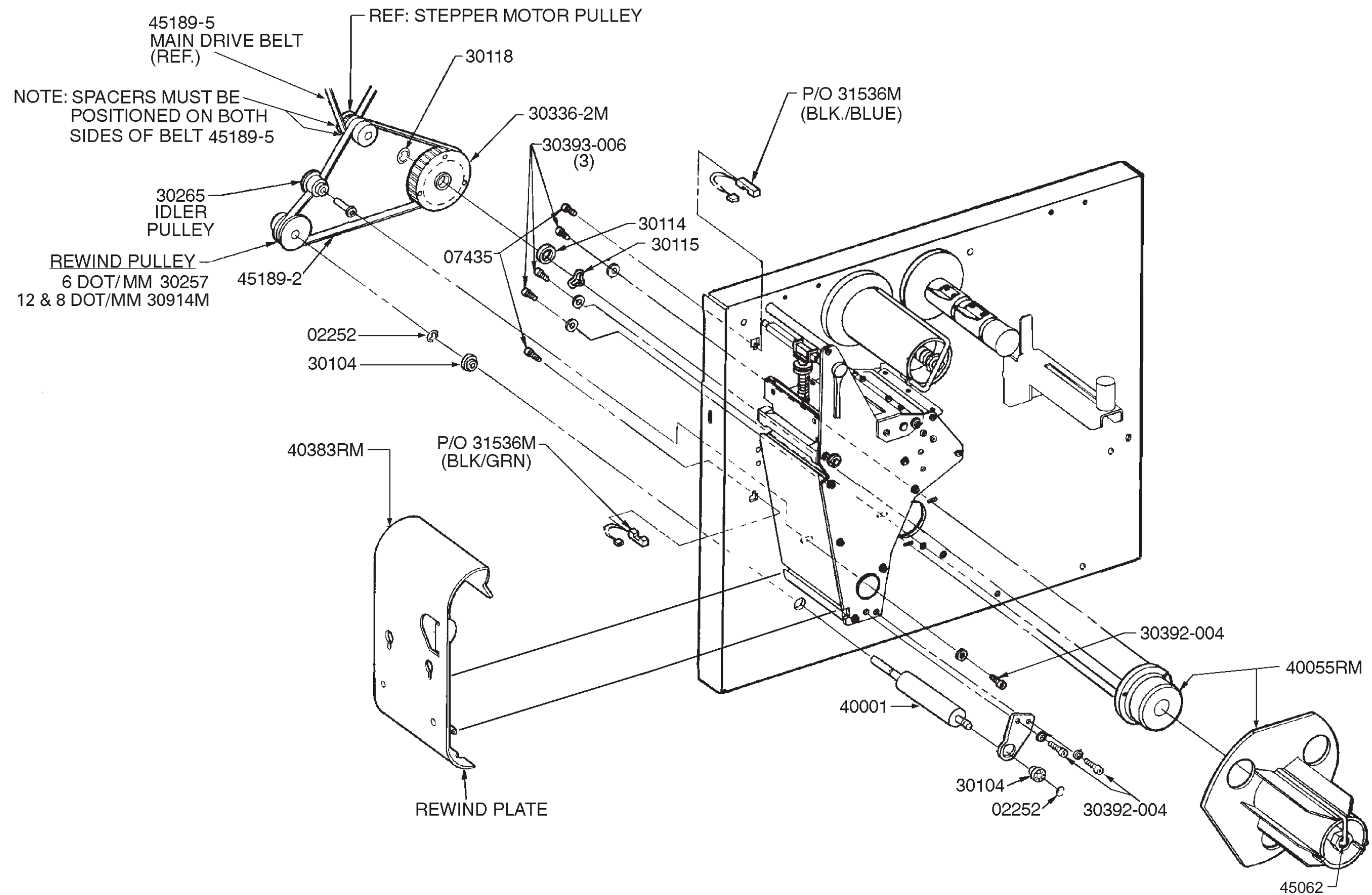
105S Peel-Off Option Assembly

PRINTER MODEL: 160S			
Peel-Off Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
02252		Ring, Crescent, .250	2
07435		Screw, 6-32 .37	2
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Save, .740 x .520 x .08	1
30118		Ring, “E”, External, .500 x .042	1
30247		Washer, Flat, .42 x .260 x .0747	1
30261		Washer, Flat, .442 x .255 x .020	1
30265		Pulley, Idler	1
30336-2M		Pulley Assembly, Media Rewind	1
30392-004		Screw, 6-32 .25	3
30392-006		Screw, 6-32 .37	1
30393-006		Screw, 8-32 .37	3
30914M		Pulley Assembly, Rewind (8 Dots/mm)	1
30536M		Sensor Assembly, Take-Label, Upper	1
38055M		Spindle, Media Rewind	1
40490-3		“J” Hook	1
45189-2		Belt, Rewind	1
46001		Shaft, Platen	1
46609M		Sensor Assembly, Take-Label, Lower	1



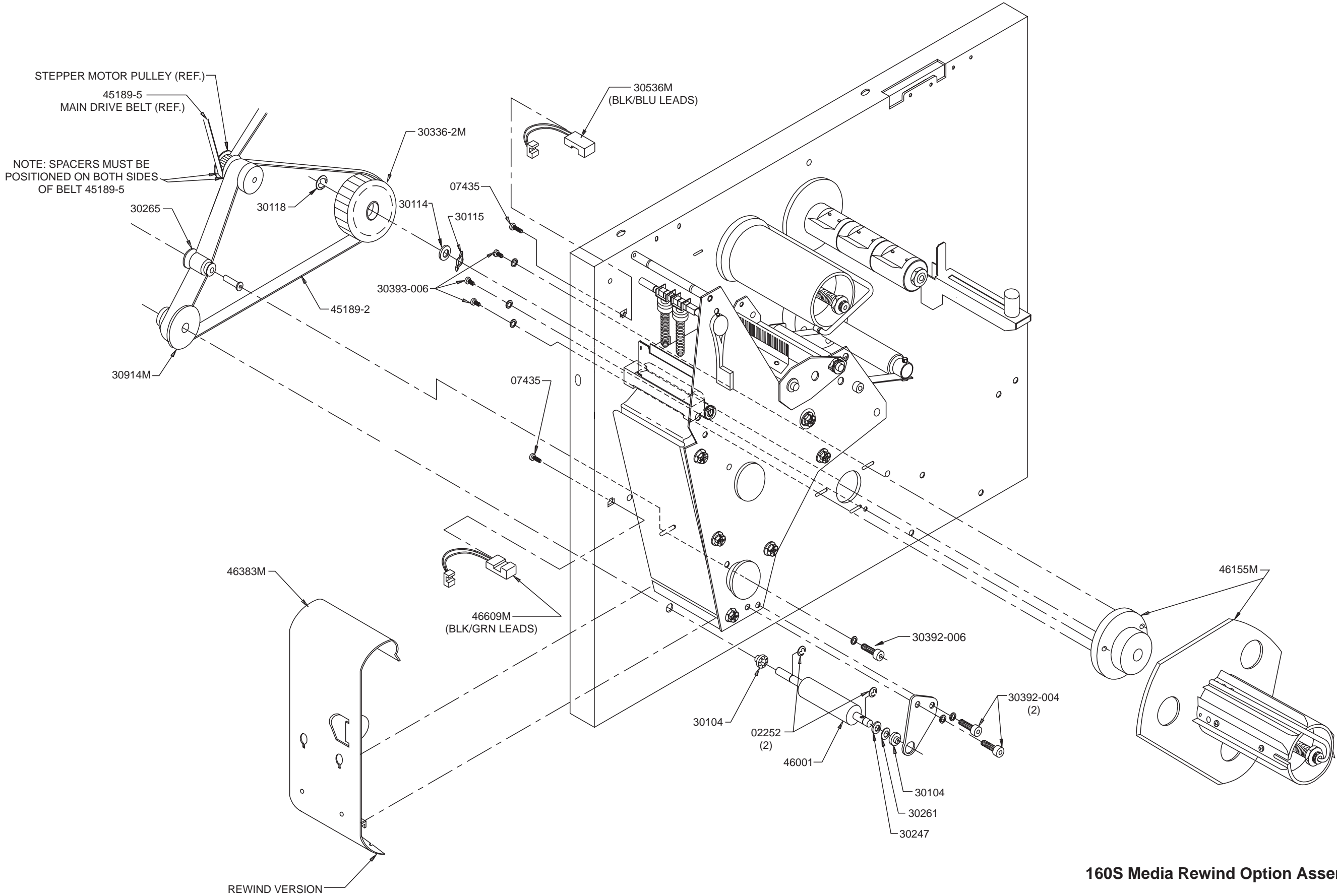
160S Peel-Off Option Assembly

PRINTER MODEL: 105S			
Media Rewind Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
02252		Ring, Crescent, .250	2
07435		Screw, 6-32 .37	2
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Save, .740 x .520 x .08	1
30118		Ring, "E", External, .500 x .042	1
30257		Pulley Assembly, Rewind (6 Dots/mm)	1
30265		Pulley, Idler	1
30336-2M		Pulley Assembly, Media Rewind	1
30392-004		Screw, 6-32 .25	3
30393-006		Screw, 8-32 .37	3
30914M		Pulley Assembly, Rewind (8 Dots/mm and 12 Dots/mm)	1
31536M		Sensor Assembly, Take-Label	1
40001		Shaft, Platen	1
40055RM		Spindle, Media Rewind	1
40383RM		Assembly, Rewind Plate	1
45189-2		Belt, Rewind	1
45062		Media Take-Up "J" Hook	1



105S Media Rewind Option Assembly

PRINTER MODEL: 160S			
Media Rewind Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
02252		Ring, Crescent, .250	2
07435		Screw, 6-32 .37	2
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Save, .740 x .520 x .08	1
30118		Ring, “E”, External, .500 x .042	1
30247		Washer, Flat, .42 x .260 x .0747	1
30261		Washer, Flat, .442 x .255 x .020	1
30265		Pulley, Idler	1
30336-2M		Pulley Assembly, Media Rewind	1
30392-004		Screw, 6-32 .25	3
30392-006		Screw. 6-32 .37	1
30393-006		Screw, 8-32 .37	3
30536M		Sensor Assembly, Take-Label, Upper	1
30914M		Pulley Assembly, Rewind (8 Dots/mm)	1
45189-2		Belt, Rewind	1
46001		Shaft, Platen	1
46062		Media Take-Up “J” Hook	1
46155M		Spindle, Media Rewind	1
46383M		Assembly, Rewind Plate	1
46609M		Sensor Assembly, Take-Label, Lower	1



160S Media Rewind Option Assembly



In this section...	Page
Mechanical Parts and Assemblies	8-1
Mechanical Parts and Assemblies Listing.....	8-2

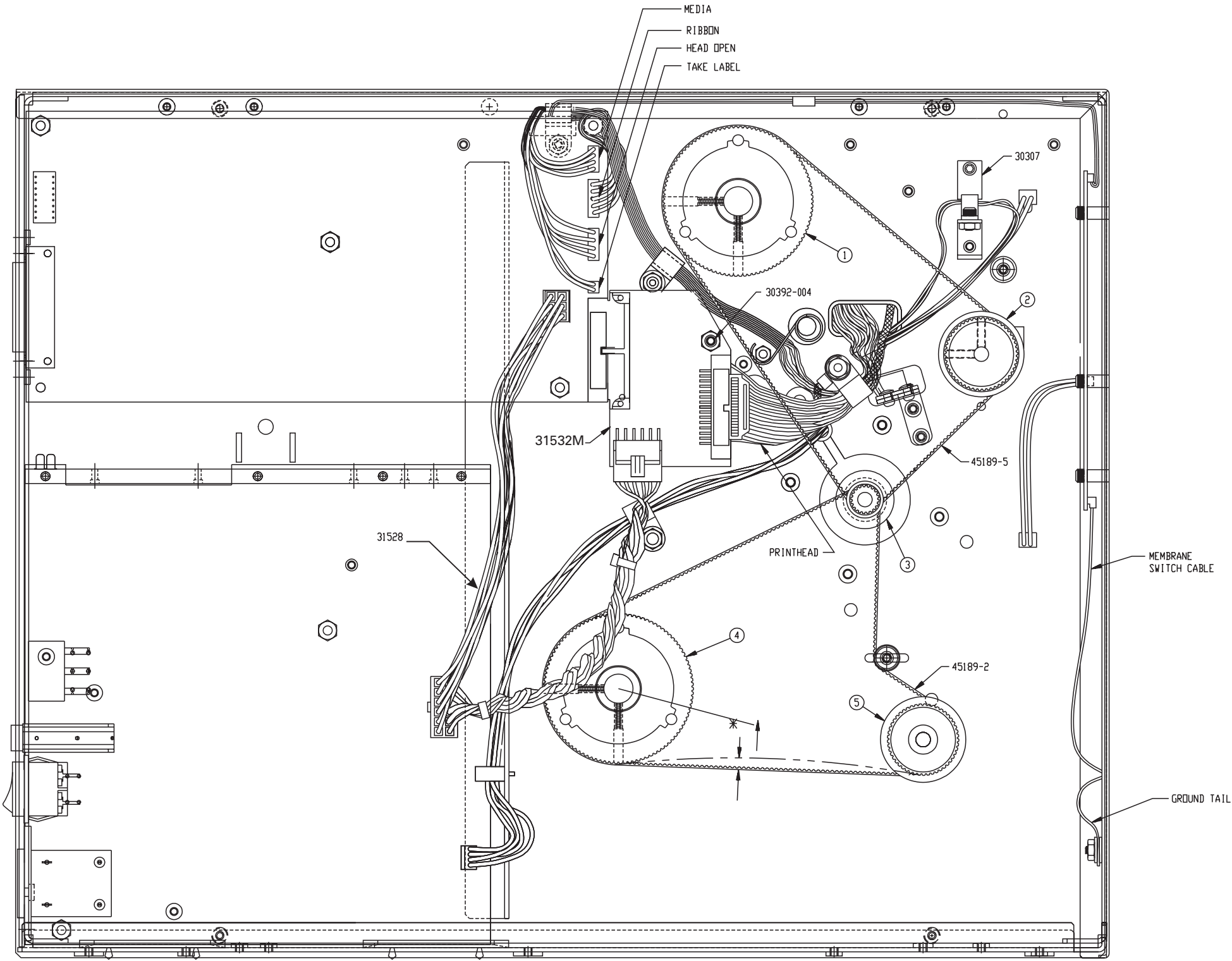
Please note: This section contains parts lists and drawings that are specific to the 105Se. For parts lists/drawings common for both the 105S and 105Se, refer to Section 7.

Mechanical Parts and Assemblies

MECHANICAL PARTS AND ASSEMBLIES	
Description	Page #
105Se Final Assembly (Page 1 of 2)	8-2/8-3
105Se Final Assembly (Page 2 of 2)	8-4/8-5
105Se Print Mechanism Assembly	8-6/8-7
105Se Printhead Support Assembly	8-8/8-9
105Se Peel-Off Option Assembly	8-10/8-11
105Se Media Rewind Option Assembly	8-12/8-13
105Se Cutter Option Assembly	8-14/8-15

PRINTER MODEL: 105Se			
Final Assembly (Page 1 of 2)			
PART NUMBER		DESCRIPTION	QUANTITY
01130		Nut, 6-32	8
01152		Washer, Flat, .375 x .156 x .65	1
01155		Washer, Lock, #4	2
01159		Washer, External Lock, #6	5
01448		Screw, 6-32, .37	4
01912		Washer, External Lock, #4	4
07435		Screw, 6-32, .37	3
30240		Cover Plate with Opening (Serial)	1
30256		Nut, Thumb, 6-32, .50	2
30269		Pad, PVC, 4.0 x .37, .062	2
30391-004		Screw, 4-40, .25	2
30391-006		Screw, 4-40, .37	2
30392-004		Screw, 6-32, .25	20
30407-008		Screw, 6-32, .5	4
30916		Strap, Ground	1
31019		Label, Logo	1
31022		Label, Model Number	1
31038		Panel, Left Side	1
31039		Panel, Media	1
31040		Door, Media Access	1
31100M		Assembly, Membrane Switch, Front Panel	1
31517		Shield, High Voltage	1
31524M		PCB, Front LED (supersedes 31520M)	1
31532M		PCB, Printhead Adaptor	1
31646M		PCB, Power Supply	1
38102		Panel, Rear PCB (Serial)	1
38103		Panel, Rear PCB (Parallel)	1
38037		Cover, PCB	1
38532M		PCB, Serial, Main Logic	1
38692M		PCB, Parallel, Main Logic	1
40342		Bracket, Front Cover	1
46325-3		Spacer, 6-32	7

PRINTER MODEL: 105Se			
Final Assembly (Page 2 of 2)			
PART NUMBER		DESCRIPTION	QUANTITY
30257M		Pulley, Peel-Off Platen (6 Dots/mm)	1
30307		Flag, Head Open	1
30336-1M		Pulley, Ribbon Take-Up	1
30336-2M		Pulley, Media Take-Up	1
30355M		Pulley, Main Platen (6 Dots/mm)	1
30357M		Pulley, Stepper Motor (6 Dots/mm and 12 Dots/mm)	1
30392-004		Screw, 6-32, .25	1
30914M		Pulley, Peel-Off Platen (8 Dots/mm and 12 Dots/mm)	1
31528		Assembly, Power Cable	1
31532M		Assembly, Adaptor Board	1
40355M		Pulley, Main Platen (8 Dots/mm and 12 Dots/mm)	1
40357M		Pulley, Stepper Motor (8 Dots/mm)	1
45189-2		Belt, Media Rewind	1
45189-5		Belt, Main Drive	1



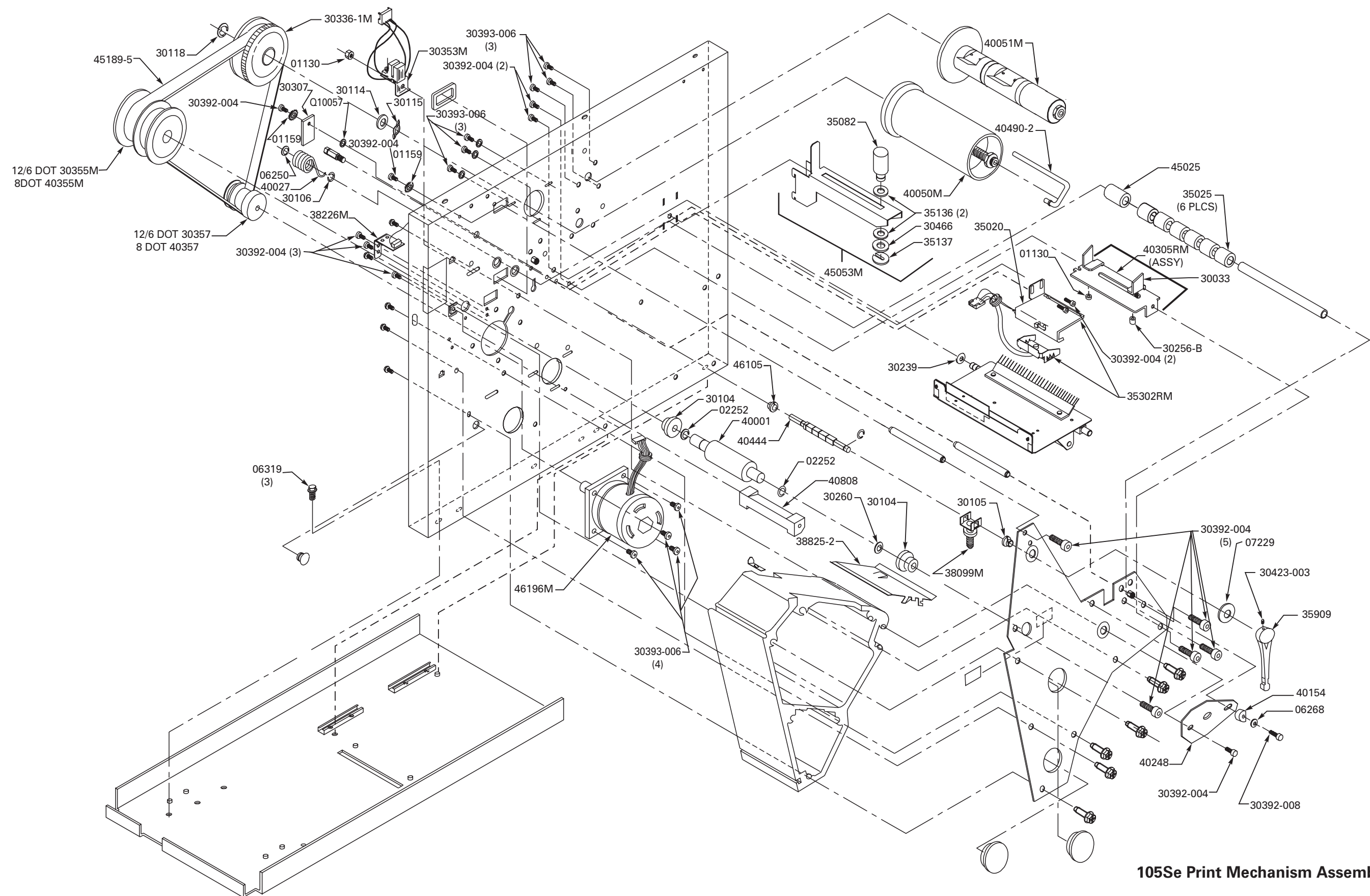
LOCATION	PULLEY	DIMENSIONS FROM MAIN-FRAME TO INSIDE GUIDING EDGE OF PULLEY
① RIBBON TAKEUP	30336-1M	FIXED IN SUB-ASSY
② MAIN PLATEN	40355M (8/12 DOT) 30355M (6 DOT)	11 MM (.433 IN.)
③ STEPPER	30357M (6/12 DOT) 40357M (8 DOT)	10 MM (.393 IN.)
④ MEDIA TAKEUP	30336-2M	FIXED IN SUB ASSY
⑤ PEELOFF	30914M (8/12 DOT) 30257M (6 DOT)	8 MM (.315 IN.)

NOTE

1. BELT TENSION
TO CHECK BELT TENSIONS, PULL ON BELTS WITH SPRING SCALE AT LOCATIONS SHOWN WITH "*" AND IN THE DIRECTION SHOWN UNTIL BELT IS DEFLECTED 1/4". SPRING SCALE SHOULD READ AS FOLLOWS:
- | BELT # | SCALE READING | |
|---------|---------------|-----------|
| | POUNDS | GRAMS |
| 45189-5 | 4-5 | 1800-2200 |
| 45189-2 | 4-5 | 1800-2200 |
2. PEEL/TEAR OFF BAR - PLATEN GAP
PEELOFF BAR TO PLATEN GAP SHOULD BE SET TO .005 TO .015 MAX. GAP ALONG THE LENGTH OF THE PLATEN. GAP TO BE SET WITH A .004/.005 THICK BY 3" WIDE SHIM.
3. HEAD OPEN/CLOSED FLAG
WITH HEAD CLOSED, FLAG TO BE TIGHTENED IN POSITION AS SHOWN.

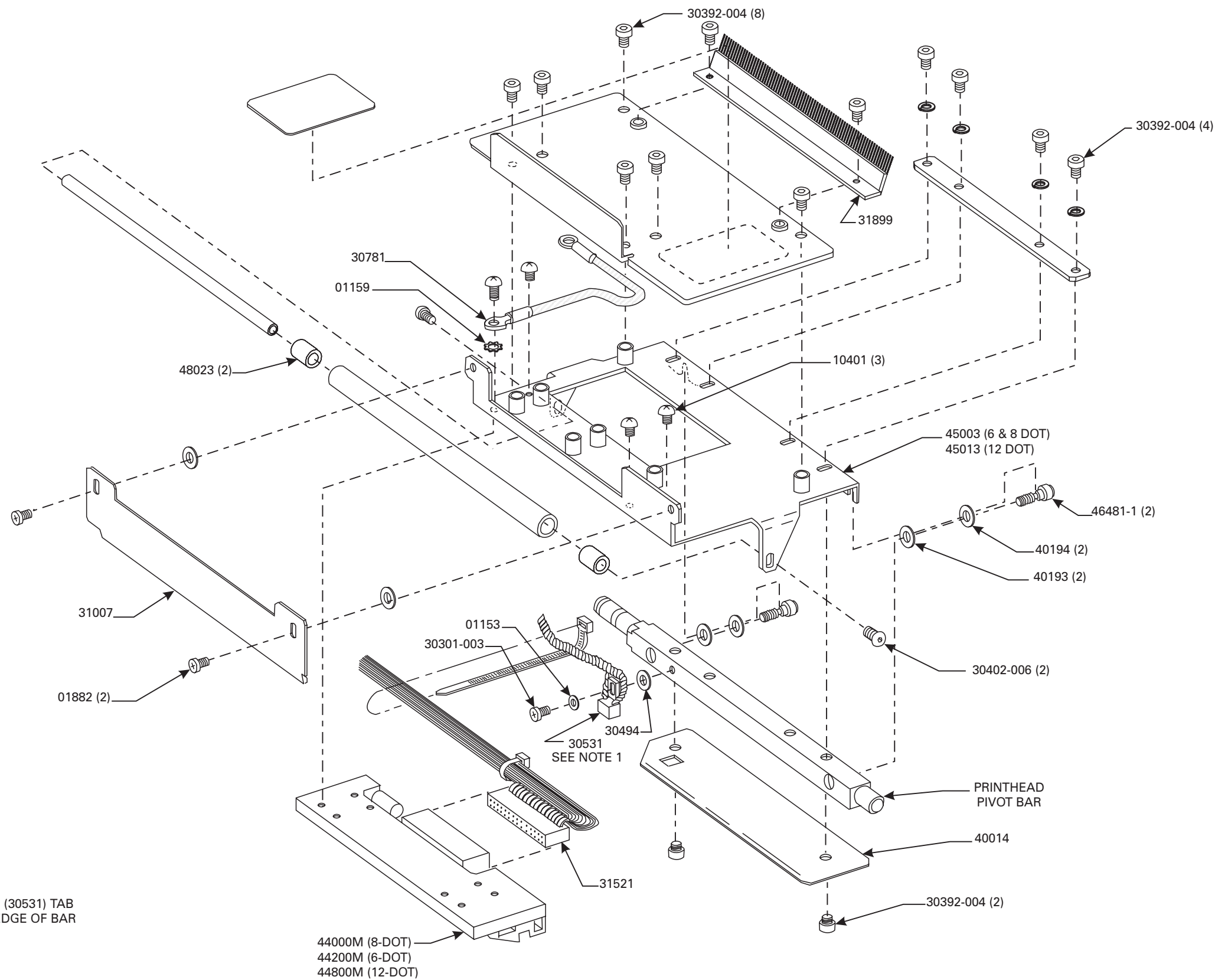
PRINTER MODEL: 105Se			
Print Mechanism Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
01130		Nut, 6-32	1
01159		Washer, External Lock, #6	2
02252		Ring, Crescent, .250	3
06250		Ring, "E" External, .312	1
06319		Screw, 10-32, .37	3
07229		Washer, Curved, .49 x .33 x .0075	1
07321		Screw, 6-32, .18	1
30033		Media Guide, Adjustable	1
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30105		Bearing, Nylon, .312 x .251 x .078	2
30106		Ring, Crescent, External, .312	1
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Wave, .740 x .520 x .080	1
30118		Ring, "E", External, .500 x .042	1
30239		Washer, Crescent, .415 x .323 x .062	1
30256-B		Nut, Thumb	1
30260		Washer, Crescent, .406 x .253 x .030	1
30307		Flag, Head Open	1
30336-1M		Assembly, Ribbon Take-Up Pulley	1
30353M		Assembly, Head Open Sensor	1
30355M		Assembly, Platen Pulley (6 Dots/mm)	1
30357M		Assembly, Stepper Motor Pulley (6 Dots/mm and 12 Dots/mm)	1
30392-004		Screw, 6-32, .25	12
30392-008		Screw, 6-32, .50	1
30393-006		Screw, 8-32, .37	10
30466		Washer, .26 x .63 x .06	2
35020		Bracket, Media Sensor	1
35025		Roller Segment	6
35082		Guide, Media	1
35136		Washer, Nylon, .252 x .472 x .059	2
35137		Ring, Retainer, .250	1
35302RM		Assembly, Media Sensor	1
35909		Handle, Printhead	1
38226M		Assembly, Reflective Sensor (optional)	1
38099M		Assembly, Toggle	1
38825-2		Guide Plate, Upper Media (Snap Plate_	1

PRINTER MODEL: 105Se			
Print Mechanism Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
40001		Roller, Main Platen	1
40027		Spring, Torsion	1
40050M		Spindle Assembly, Ribbon Take-Up	1
40051M		Spindle Assembly, Ribbon Supply	1
40305RM		Assembly, Media Guide	1
40355M		Assembly, Platen Pulley (8 Dots/mm and 12 Dots/mm)	1
40357M		Assembly, Stepper Motor Pulley (8 Dots/mm)	1
40444		Shaft, Pivot	1
40490-2		Ribbon Take-Up Hook	1
40808		Tear/Peel-Off Bar	1
45025		Roller, White Nylon, .62, .18	1
45053M		Assembly, Media Supply Maintenance	1
45189-5		Belt, Main Drive	1
46105		Bearing, Nylon, .312, .251, .140	1
46196M		Motor, Stepper	1
48411		Thumb Screw	2



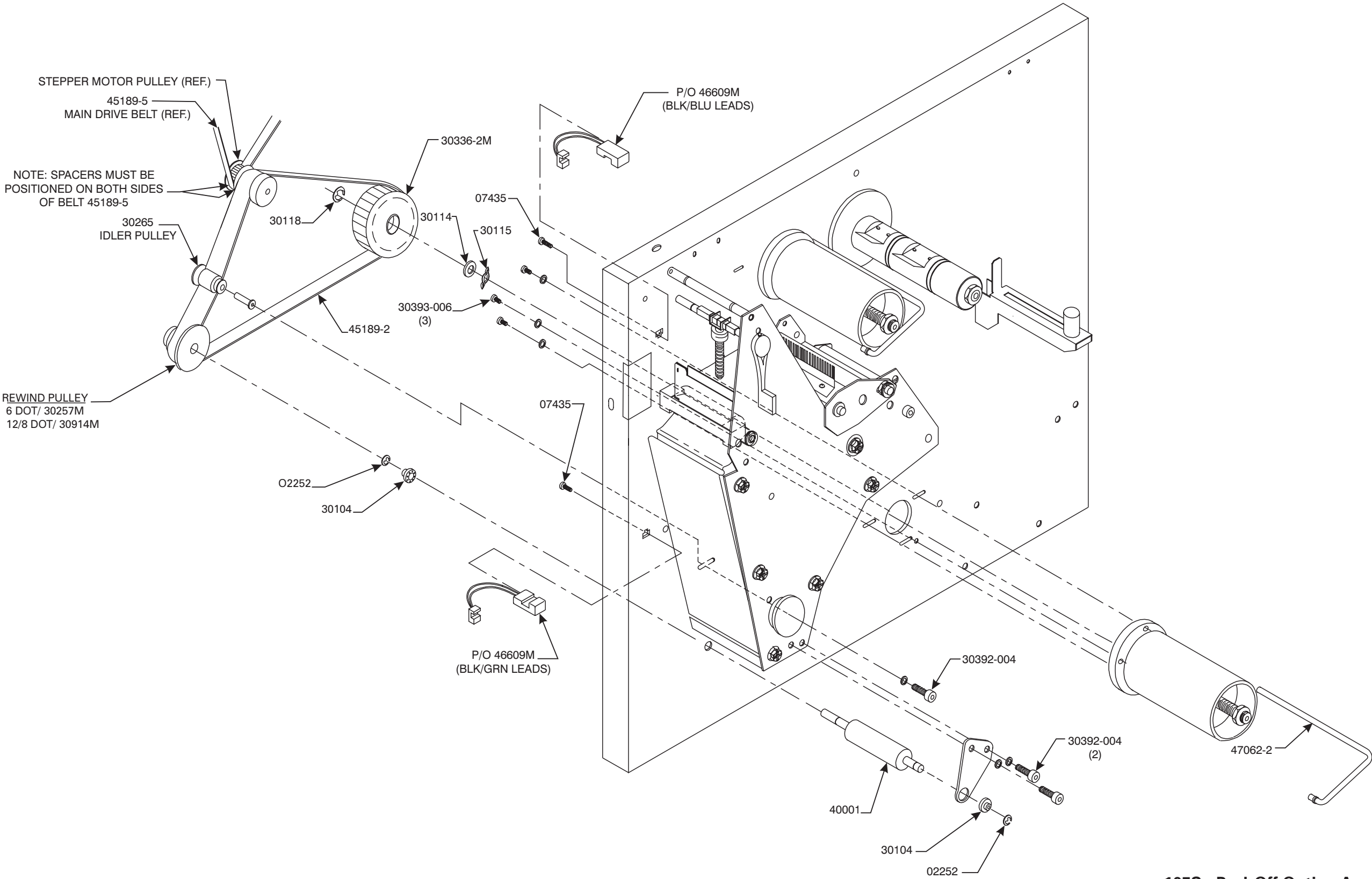
105Se Print Mechanism Assembly

PRINTER MODEL: 105Se			
Printhead Support Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
01153		Washer, Flat, .250 x .125 x .028	1
01159		Washer, Lock, #6	1
01882		Screw, 4-40, .19	2
10401		Screw, M3 x .5 x 4	3
30301-003		Screw, 4-40, .19	1
30392-004		Screw, 6-32, .25	14
30402-006		Screw, 6-32, .37	2
30494		Washer, .320 x .119 x .062	1
30531		Assembly, Ribbon Sensor	1
30781		Cable, Printhead Ground	1
31007		Plate, Ribbon Strip	1
31521		Assembly, Printhead Cable	1
31899		Brush, Static Removal	1
40014		Guide Plate	1
40193		Washer, Felt, .406 x .172 x .048	2
40194		Washer, Curved, .312 x .144 x .016	2
44000M		Printhead (8 Dots/mm)	1
44200M		Printhead (6 Dots/mm)	1
44800M		Printhead (12 Dots/mm)	1
45003		Bracket (6 Dots/mm and 8 Dots/mm)	1
45013		Bracket (12 Dots/mm)	1



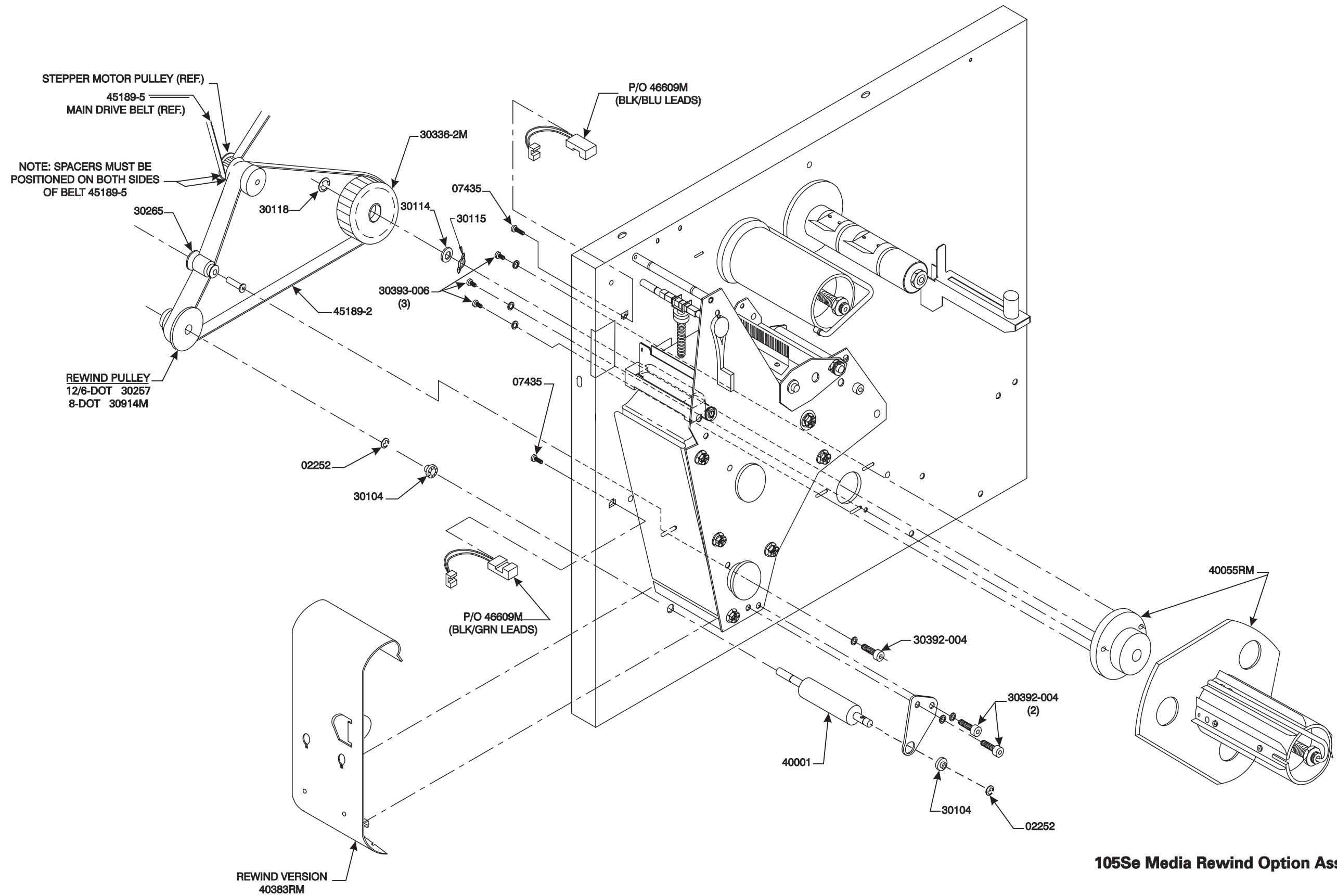
NOTE:
1. POSITION SENSOR (30531) TAB
FLUSH WITH TOP EDGE OF BAR
(40002).

PRINTER MODEL: 105Se			
Peel-Off Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
02252		Ring, Crescent, .250	2
07435		Screw, 6-32, .37	2
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Save, .740 x .520 x .08	1
30118		Ring, “E”, External, .500 x .042	1
30257M		Pulley Assembly, Rewind (6 Dots/mm)	1
30265		Pulley, Idler	1
30336-2M		Pulley Assembly, Media Rewind	1
30392-004		Screw, 6-32, .25	3
30393-006		Screw, 8-32, .37	3
30914M		Pulley Assembly, Rewind (8 Dots/mm and 12 Dots/mm)	1
40001		Shaft, Platen	1
40490-2		Take-Up Hook	1
45189-2		Belt, Rewind	1
46609M		Sensor Assembly, Take-Label, Upper/Lower	1
47062-2		“L” Hook, Ribbon Assembly, 6 inches	1



105Se Peel-Off Option Assembly

PRINTER MODEL: 105Se			
Media Rewind Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
02252		Ring, Crescent, .250	2
07435		Screw, 6-32, .37	2
30104		Flange, Ball Bearing, .5 x .250 x .125	2
30114		Washer, Flat, .76 x .51 x .03	1
30115		Washer, Save, .740 x .520 x .08	1
30118		Ring, "E", External, .500 x .042	1
30257M		Pulley Assembly, Rewind (6 Dots/mm)	1
30265		Pulley, Idler	1
30336-2M		Pulley Assembly, Media Rewind	1
30392-004		Screw, 6-32, .25	3
30393-006		Screw, 8-32, .37	3
30914M		Pulley Assembly, Rewind (8 Dots/mm and 12 Dots/mm)	1
40001		Shaft, Platen	1
40055RM		Spindle, Media Rewind	1
40383RM		Assembly, Rewind Plate	1
45189-2		Belt, Rewind	1
46609M		Sensor Assembly, Take-Label	1



105Se Media Rewind Option Assembly

PRINTER MODEL: 105Se			
Cutter Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
01155		Washer, Lock #4	1
01822		Nut, 4-40	3
02133		E-Ring, .188, Black	4
06224		Grommet, Rubber	1
08449		Tiewrap	1
10421		Screw, M4 x .7 x 5	4
10427		Screw, M4, .7	2
30133		Bearing, Ball .375 x .187 x .125	1
30196-150		Module, Cutter	1
30198		Bearing	1
30199		Bearing	3
30208		Washer, Flat, .500 x .191 x .030	2
30210		Washer, Flat, .564 x .384 x .060	2
30214		Link, Main	1
30215		Link, Slotted	1
30216		Post, Pivot	1
30217-1		Link, Pin	1
30219		Flag, Sensor	1
30236		Screw, 4-40	3
30313		Clamp, Wire, Cutter	1
30380M		Assembly, Drive Arm	1
30391-003		Screw, 4-40, .19	4
30392-004		Screw, 6-32, .25	6
30394-005		Screw, 10-32, .312	2
30405-006		Screw, 1/4-20, .38	1
30816		Bracket, Lower Cutter	1
31024		Standoff	4
31181		Guide, Upper Cutter	1
31374M		Assembly, Cutter Motor	1
31730M		Assembly, Cutter Printed Circuit Board	1
31807		Bracket, Upper Cutter	1

PRINTER MODEL: 105Se			
Cutter Option Assembly			
PART NUMBER		DESCRIPTION	QUANTITY
40193		Washer, Felt, .406 x .172 x .048	2
40320		Brush, Anti-Static	1
40819		Bracket, Cutter Support	1
46280M		Arm, Upper Drive	1
46618		Assembly, Cutter Sensor	1
49600-012		Assembly, Cable	1
49604-010		Assembly, Power Cable	1
Q10019		E-Ring, .250, Black	1

